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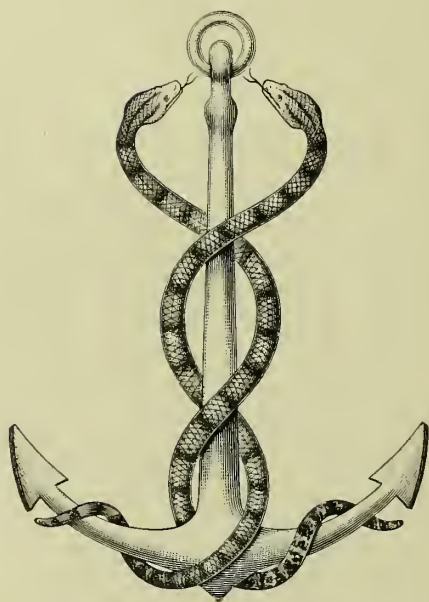




No. 39



CLINICAL MEDICINE.



NUNQUAM ALIUD NATURA, ALIUD SAPIENTIA DICIT.

# CONTRIBUTIONS

TO

# CLINICAL MEDICINE

BY

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## PREFACE.

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THE following pages contain an epitome of some of the experiences of one who has been a Hospital Physician and Clinical Teacher for upwards of a quarter of a century.

Some of the papers and cases are published for the first time, while some have already appeared, generally in a more or less fragmentary form, and therefore not readily accessible.

If not to a wider circle of readers, it is hoped that this volume may at least prove interesting to many of the old students of the Author, who may perhaps recognise some familiar friends among the cases which are recorded.

2 WOODSIDE TERRACE, GLASGOW,  
*October 1898.*



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CLINICAL MEDICINE.



## GENERAL DISEASES.



## I.

### ON THE DANGER OF NEGLECTING, AND ON THE BEST MEANS OF CONTROLLING, THE FEBRILE STATE.

It cannot be denied that, even at the present day, in dealing with fevers and inflammations, far too little attention is bestowed upon the element of fever; for it should never be forgotten that fever is of itself, either from its intensity or from its long continuance, a source of great danger, apart altogether from the cause which has induced it. And I have no hesitation in expressing the opinion that thousands of our countrymen are sacrificed annually, owing to a neglect, or to a depreciation, of the element of fever. This is especially the case with puerperal, scarlet, typhoid, and rheumatic fevers, and with acute phthisis.

No more serviceable nor more generally employed instrument than the clinical thermometer has come into use in the practice of medicine in recent years, but of how little value is it to the unfortunate patient, if its readings are limited to aiding our diagnosis, or to giving an opinion as to the probable upshot of the complaint, as is so often the case.

Fever is a consuming fire, which, so long as it lasts, is accompanied by progressive emaciation and by increasing debility, so that, as a rule, it demands not inaction, on the lines of the old dogma that fever is an effort of nature to free the system from the noxious elements produced by the disease, and is therefore to be encouraged,—not the use of so-called antiphlogistic remedies, but the employment of supporting measures. Of all the wise sayings of the late Dr. Graves, perhaps the most sage was his remark: “If you are at a loss for an epitaph to be placed on my tomb, here is one for you—‘He fed fevers.’”

There are probably few at the present day who do not more or less act upon this principle, and who would not admit that, the more intense and persistent the fever, the greater is the

necessity for the administration of stimulants, given in small doses and at short intervals. But if a patient in danger of death from pyrexia must be well fed and freely stimulated, he must also be otherwise well nursed; indeed, the services of a trained and sagacious nurse are a *sine quâ non* in the management of such perilous cases.

These measures are of themselves calculated, not only to mitigate the ravages of the fever, but also to a certain extent to lower its intensity; but although indispensable to the maintenance of life, they cannot alone be relied upon to bring down the temperature in serious cases.

As is well known, the credit of having introduced the cold water treatment of fevers—chiefly in the shape of cold affusion—is due to James Currie, the founder of hydropathy, towards the close of last century; but while hydropathy has flourished more and more since his day, the hydropathic treatment of pyrexia was soon forgotten, partly from the dread of an outraged public opinion, and partly because the wished-for result was not obtained, owing to its not having been used with sufficient energy and persistence, or with an abiding faith in its efficiency.

Cold, in some shape or other, is the most natural, and at the same time one of the most powerful measures at our disposal for reducing the temperature, although we must remember that the cooling down of the living body is a much more complex problem than that of cooling a body not endowed with life. This is apparent if we study the effects of the cold bath on a healthy person. The body protects itself in two ways; in the first place, the cutaneous capillaries contract, thus limiting the abstraction of heat; and in the second there is a greatly increased production of heat; so that, although after the bath a slight cooling of the body takes place, during it (if it is not too long continued, and if the water is not too cold, thus putting too great a strain upon the regulating apparatus) there is no lowering, but even a slight rise of temperature. It is the same with a fever patient, with this exception, that the regulating power is not so active, and thus he is not so able to resist the cooling process. But still it is the persistent power of the fever patient to keep up his high temperature, just as a healthy person tends to keep up his normal temperature, which is the chief difficulty in the way of treatment.

Some benefit is to be derived from allowing our patient to



suck ice *ad libitum*; from icing his food and drink; from sponging the body frequently with iced water, or rubbing it with lumps of ice; and in certain cases Liebermeister's suggestion may be tried, namely, that of washing out "the intestinal mucous membrane for a length of time with a constant stream of cold water, by means of a double-action œsophageal tube carried far up the rectum, one pipe of which should be put in communication with the reservoir." In other cases, cold affusion may be tried,—although patients often object to it,—and this may be done by bringing the head beyond the edge of the bed, and pouring a quantity of cold water upon it. A more effectual method of treatment is the cold pack; and it has been estimated that three or four packs, each of half an hour's duration, is equivalent to a cold bath of ten minutes. Another useful remedy is the application of iced cloths to the abdomen, as recommended by me many years ago in the treatment of acute phthisis, and which may be continued for half an hour or more at a time, the process being repeated as often as required, more especially if it is agreeable to the patient, who sometimes asks for its repetition.<sup>1</sup>

There can be no doubt, however, that the most certain and speedy manner of reducing the temperature by cold is by the use of the cold bath. In cases of great exhaustion, this procedure involves considerable responsibility, because the slight fatigue involved in putting a patient into and taking him out of a bath may prove the last straw which determines a fatal issue from syncope, and because it is apt to appear to the patient's friends to be a very heroic remedy. But although this last consideration need not weigh with us, if there seems thereby a chance of saving life, I am inclined to think that the medicinal treatment of hyperpyrexia, in combination with some of the milder methods of applying cold, will come more and more to supplant the use of baths, especially as we are almost daily becoming acquainted with new drugs, which act with nearly mathematical precision in the way of lowering the temperature of the body. At the same time, I must admit that I have experienced most brilliant results from the use of the bath, and one case I shall never forget, that of a young governess labouring under typhoid fever of a severe type, with a temperature of

<sup>1</sup> For the method of applying the iced cloths, and for cases illustrative of their use, see chapter on "the Curability of Acute Phthisis."

above 105° F. at the end of the third week of her illness. She had profuse diarrhœa, hæmorrhage from the bowels, pronounced hypostatic congestion of the lungs, and she was almost insensible and pulseless. In this case, in addition to giving quinine in large doses, she was put into a cold bath, after which she almost immediately rallied, and although it was some days before the temperature became permanently normal, she made an excellent recovery.

As regards so-called antipyretic medicines, time will only permit of my referring to four—(1) Salicin and the salicylates, (2) quinine, (3) kairin, and (4) antipyrin.

Salicin and the salicylates have been much vaunted of late as antipyretics. Thus Lauder Brunton, in his valuable work on "Pharmacology, Therapeutics, and Materia Medica," says of salicin, p. 939, "It is an antipyretic"; and of salicylic acid, p. 741, "It is a most powerful agent in lowering the temperature in fever." Now, everyone will admit that, in cases of rheumatic fever, these drugs generally speedily bring down the temperature to the normal; but why do they do so? Not because they act upon the heat centre, but because they remove the rheumatism which is the cause of the fever. As a matter of fact, they cut short the febrile movement, just as the surgeon's knife does when he opens an acute abscess, and gives free exit to the pent-up pus.

But, further, you will sometimes find that even although salicin puts a stop to the pain and swelling of the joints, it does not of necessity control the fever. This is well illustrated by a case reported by my colleague, Sir Wm. Gairdner, of which the following is an outline:<sup>1</sup>—

CASE 1.—A female, æt. 35, was admitted into the Western Infirmary, 4th April 1877, with acute rheumatism of six days' duration, attributed to getting her feet wet. There was a history of a similar attack nine years before. All the joints, except the hips and shoulders, were swollen and painful, and there was pericarditis with evident effusion, accompanied by pain in the præcordial region, and headache. On the night of admission the temperature was 103°·8 F., and salicin in 20-gr. doses was given every hour, but was changed after three or four doses to salicylate of soda; and although, with the exception of severe headache, all pain had completely subsided by midday of the 5th (twenty-four hours after admission), the temperature rose rapidly, till

<sup>1</sup> *Glasgow Med. Journ.*, Oct. 1877, p. 435.

it culminated on 6th April in  $106^{\circ} \cdot 2$  F. Salicin was pushed in large and frequent doses, to watch its effect on the temperature; but as this gradually rose to hyperpyrexia, the treatment by means of iced cloths to the abdomen (above referred to) was employed, with the effect of rapidly bringing down the temperature, and of keeping it perfectly under control. She had in all 600 grs. of salicin, and 200 of salicylate of soda.

In a paper published by Dr. Holland of St. Moritz, giving cases of phthisis treated by means of antipyrin, I find that in six of them the salicylate of soda was tried, and in not a single case was the temperature lowered in the least. To tell the truth, I have no faith in the salicylates as antipyretics, except to the extent already indicated, and I am quite willing to have the matter tested, and to compare their effects with those of the other medicines about to be mentioned, if a case—such as typhoid fever or acute phthisis—is selected, in which all chance of a rheumatic element is excluded.

But, while sceptical as to the antipyretic virtues of the salicylates, I have formed a very different opinion with regard to quinine, which I was taught in my student days to avoid sedulously in all cases in which fever is present,—though, curiously enough, an exemption was made in favour of intermittent fever. It is unnecessary for me to dwell upon this subject, because probably all will nowadays admit that quinine is a powerful antipyretic, if given in large doses (10 to 40 grs. in a single dose or in divided doses within an hour). In fact we must, as Liebermeister has remarked, give such a dose as will bring down the temperature for a time to the normal, on the principle that an extremely violent fever, which has occasional intermissions, is much less dangerous than a less violent fever which is continuous, or only shows slight remissions.

Kairin is an artificial alkaloid, recently built up synthetically by Dr. Otto Fischer of Munich, and is described as being the hydrochlorate of oxy-chinolin-ethyl. This (and other similar bodies) was handed over to Dr. Filehne for examination in 1881, who found it a most powerful antipyretic. The dose is 8 to 16 grs. every hour until the temperature is reduced nearly to the normal, and generally three hourly doses are sufficient. As the temperature falls, the pulse and respiration become slower, and there is generally profuse sweating, which, however, ceases when the temperature is normal. The sweating may usually be

prevented by administering an antisudorific, about a quarter of an hour before the medicine is commenced, such as a pilule of agaricin, gr.  $\frac{1}{20}$  (Riegel) or gr.  $\frac{1}{70}$  of atropia. As the temperature falls, the patient feels more comfortable, and there is never any really bad symptom unless the drug is impure, in which case cyanosis and collapse have been known to result. But within twelve hours of the commencement of the kairin, the urine becomes greenish in colour, and this continues for about twenty-four hours after it is stopped. When the influence of the kairin is exhausted, which occurs generally in from two to three hours, according to the dose, the temperature rises, and then the patient experiences a feeling of chilliness, and even a severe rigor is not uncommon. (See Chart, Fig. 1.)

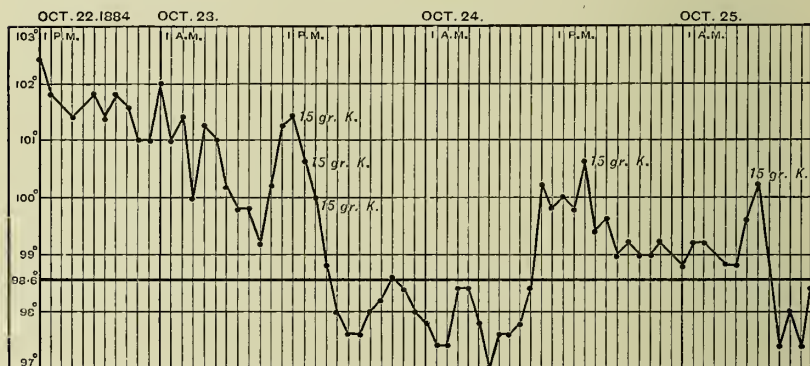


FIG. 1.—Illustrating the effect of kairin in a case of cancer of the ascending colon.

This medicine has an advantage over quinine, in so far as it brings down the temperature more rapidly, but it labours under the serious disadvantage that its effects are more transient.

Antipyrin is a medicine more recently introduced, and is a synthetic alkaloid belonging to the group of chinolin derivatives, for which we are indebted to Dr. Knorr of Erlangen. The dose is from 10 to 30 grs., and the first effect of its administration is a dilatation of the cutaneous vessels, which is soon followed by a fall of temperature, accompanied by sweating. The normal temperature is not influenced by it, but, where fever is present, three hourly doses of 30 grs. generally bring it down to or below the normal. (See Chart, Fig. 2.)

While both medicines must be regarded in the light of very certain antipyretics, my present feeling is in favour of antipyrin.

It is comparatively devoid of taste, is readily soluble in water (1 in 3 in the cold), so that it may be administered subcutaneously, if desired, and it does not discolour the urine. It not only



FIG. 2.—Illustrating the effect of antipyrim in a case of typhoid fever.

lowers the temperature with at least as much certainty as kairin, but is, as a rule, more permanent in its effects; the latter too often produces vomiting, headache, and epistaxis, and, when the

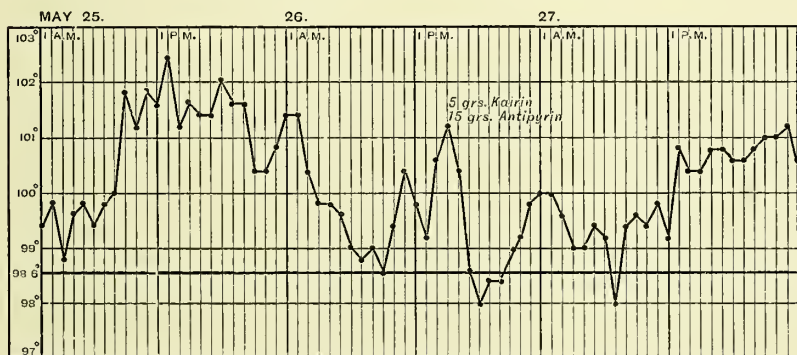


FIG. 3.—Illustrating the effect of a combination of kairin and antipyrim in a case of peritonitis.

temperature begins to rise, a rigor very frequently ensues, which, to say the least, is an unpleasant occurrence, and which may also lead to errors of diagnosis.

Mingazzini has tried the effect of giving the two medicines in combination, and his experience is that in this way a more



marked and more permanent fall of temperature takes place than when either is given separately; and, further, that when kairin is given along with antipyrin, the former does not give rise to the inconveniences which are apt to ensue when it is given alone. (See Chart, Fig. 3.)

Other remedies of the same class are much used, and are preferred by some, such as antifebrin in doses of 2 to 10 grs., and phenacetin in doses of 10 grs. and upwards; but time will not permit of my referring to them in detail, although my experience is in favour of their use.

Such are the measures which appear to me capable of fulfilling the object in view,—that of combating the element of fever when, from its intensity, or from its long continuance, it threatens the safety of the patient.

## II.

### THE LESS COMMON FORMS, AND MODES OF TREATMENT, OF SYPHILITIC AFFECTIONS.

IN the chapter on Syphilitic Diseases of the Nervous System, reference will be made to the frequency with which the true nature of the disease is overlooked, and the reasons for such being the case. In syphilitic affections of the other organs and tissues similar difficulties are often experienced, more especially in the discrimination of tubercular from syphilitic affections. But fortunately we have at our command the means of settling the point by watching the effects of the subcutaneous injection of tuberculin on the one hand, and of antisyphilitic treatment on the other. The following case, in which the suspicion of tubercular ulceration was verified by tuberculin injections, is a good illustration of this:—

CASE 2.—A painter, æt. 18, was admitted into the Western Infirmary of Glasgow on 13th November 1896, suffering from an affection of the right leg of fully two years' duration. His family history was good, and he himself always enjoyed good health until the age of 15, when a lateral curvature of the spine set in, and gradually increased, but without pain or constitutional disturbance. On admission, a very marked deviation of the dorsal vertebræ to the left was present, and the angles of the ribs were extremely prominent on that side. In other respects he remained quite well, until the summer of 1894, when he sprained his right ankle. Shortly thereafter he observed a small round red mark, about the size of a sixpence, below the right internal malleolus, which gradually increased in size but gave him no inconvenience. Six weeks before I saw him the skin "broke," so that he was unable to continue at his work. The patch then extended more rapidly, passing round the heel to the outer side of the foot, soon after which it became very painful and itchy, and the seat of profuse serous exudation. At this time a small reddish patch appeared upon the left internal malleolus, as the result, he thought, of contact with the other foot.

On admission, the right ankle was the seat of superficial ulceration, extending for about two inches in all directions from the external malleolus. The patch was rather serpiginous in shape, and the edges were crusted. It had rather a livid tint and a somewhat eczematous appearance, and there was an abundant serous exudation. On the left internal malleolus there was a small area occupied by a dry, slightly livid patch.

He was put upon cod-liver oil, and an injection of tuberculin ( $\cdot 0005$  c.c.) was given on 14th November for purposes of diagnosis. This was followed by a marked local and general reaction, reaching its height the following day at 2 P.M., when the temperature reached  $102^{\circ} \cdot 2$  F.

The tubercular nature of the ulceration being thus verified, the injection was repeated, in the same dose, after the fever had abated for twenty-four hours (on the 18th). The reaction on this occasion was even more decided, the temperature rising at midnight to  $103^{\circ} \cdot 8$  F., and remaining above  $102^{\circ}$  F. till 2 P.M. on the following day. The third injection, on the 21st, was only followed by a temperature of  $101^{\circ}$  F., so that after this the strength of the dose was gradually increased until  $\cdot 008$  c.c. was given on 13th December, which was followed by a brief rise of temperature to  $101^{\circ} \cdot 6$  F.

Locally, the injections were followed by marked inflammatory reaction, on the subsidence of which a tendency to healing was observed. This has been progressive, and before he was dismissed the ulceration was completely healed.

The prognosis of syphilitic affections of the nervous system is not so unfavourable as many suppose, especially if large vessels are not permanently occluded, and if the case is recognised early and treated energetically; while it is generally favourable as regards improvement, at all events, when other organs and tissues are attacked. The following cases, which illustrate this fact fairly well, have been selected, either because they represent some of the less common forms of syphilitic affections, other than diseases of the nervous system, or the less common modes of dealing with them:—

3. Case of supposed Hodgkin's disease treated with iodide of potassium.

4. Case of syphilis in which pain in the chest was a prominent feature.

5. Syphilitic disease of the eyes and brow.

6. Interstitial corneitis and affection of the knee-joints, consequent upon hereditary syphilis.

7. Interstitial corneitis and affection of the knee-joints, consequent upon hereditary syphilis.



8. Treatment of syphilis by injections of syphilitic antitoxin.

9 and 10. Two cases of syphilitic disease of the nose presenting almost identical characters, — the one treated with iodide of potassium and calomel ointment, and the other with antisyphilitic serum.

11. Case of syphilitic tongue treated by means of subcutaneous injections of perchloride of mercury.

#### SUPPOSED HODGKIN'S DISEASE TREATED WITH IODIDE OF POTASSIUM.

CASE 3.—A gentleman, æt. 35, was sent to me for an opinion by my friend Dr. Hugh Cunningham of Dumfries. He first consulted him on 29th January 1880, on account of an enormous tumour which he had on the right side, extending from the middle of the neck to several inches below the nipple, the cervical and axillary glands being also hypertrophied. More than two years before this time he first noticed a swelling (no doubt of the posterior auricular glands) behind the right ear, which extended gradually down the right side of the neck and implicated the thoracic and axillary glands. This mass measured 14 in. from its commencement in the posterior triangular space to its termination below the nipple, and transversely 10 in. from the axilla forward to near the middle line. Its surface was irregular, more or less nodulated, covered with plexuses of veins, and, at its most prominent parts, the skin was distinctly reddened. The cervical and axillary glands upon the left side were much enlarged, but not nearly to the same extent, and the right inguinal glands were considerably hypertrophied.

He was under the impression that the tumour on the right side was brought on by carrying about two hundred boxes of oranges daily on his right shoulder for a few days each month. He was intemperate in his habits, and thought he had contracted syphilis six years before I saw him, but he was a healthy-looking, well-nourished man.

It was supposed to be a case of Hodgkin's disease, but I hoped that it might have a syphilitic basis, and therefore recommended from 10 to 30 grs. of iodide of potassium thrice daily, with abstention from manual labour. The subsequent progress of the case is given in Dr. Cunningham's words :

"On 3rd March, a little more than a month after he began to take the iodide, the patient wrote saying that the 'bumps were greatly reduced, and that his breast was nearly level again.'

"On 14th April he presented himself for inspection at my request. I then found that the posterior-auricular glands on the right side had disappeared. The large tumour was not a quarter of its former size, and

the skin covering it had resumed its natural appearance. The glands of which it was composed were now quite separate and distinct, very hard, and painless. The enlarged inguinal glands had disappeared, while the cervical glands on the left side of the neck were not larger than field beans, and those in the axilla scarcely the bulk of an almond."

On 12th July, Dr. Cunningham wrote me as follows: "You will be glad to hear that A. W.'s tumours have almost entirely disappeared. Scarcely a vestige of any of them now exists."

### CASE OF SYPHILIS IN WHICH PAIN IN THE CHEST WAS A PROMINENT FEATURE.

CASE 4.—A labourer, æt. 49, came under my care on 19th August 1872, on account of severe pain in the chest. He was very intemperate, but had had no previous ailment, with the exception of relapsing fever. The pain in the chest, which was of three weeks' duration, set in suddenly after exposure to cold while perspiring. It extended across the front of the chest, and up to the back of the head. It was rheumatic-like in character and very severe, was accompanied by a slight cough, and was aggravated by coughing, drawing a long breath, or lying on the left side. There being no trace of pleurisy, and no obvious cause for the pain, it was at first suspected that it might be symptomatic of aneurysm, on the principle of suspecting aneurysm whenever a patient complains of severe and persistent pain in the chest without any obvious cause to account for it. A very careful examination, however, failed to elicit any corroborative evidence of this condition.

But, on the other hand, it was ascertained that the pain was nocturnal in character, and that three months before admission he had an indurated chancre on the glans penis. We found, further, that the inguinal and posterior cervical glands were enlarged, and that the trunk of the body was pervaded by a very distinct and characteristic roseolar rash; and as the chest pain set in along with the above symptoms, and was nocturnal, it was concluded that it also was syphilitic in character. A drachm of mercurial ointment was therefore rubbed into the skin daily, and in ten days the chest pain had disappeared, so much so that the patient refused to remain longer in hospital.

### SYPHILITIC DISEASE OF THE EYES AND BROW.

CASE 5.—Mrs S., æt. 34, was admitted to Ward 4 on 13th February 1895, with two sores on the forehead, between the eyebrows, of seven months' duration, and an affection of the left eye.

Her father died at 56, of asthma; her mother and family are alive and in good health. She herself has had five children, two of whom died at 4 and at 3 years old respectively.

There is nothing in the history obtained to give a clue to the cause of the present trouble, except that she had a sore throat about twelve years ago. In fact, there seemed to be nothing pointing in the least degree definitely to syphilis.

The affection of the brow began seven months ago as two red spots, which felt very hot. In about a month they became prominent; crusts formed, which were removed, and outlet given to a quantity of pus. In another month they had apparently healed, but broke out again shortly afterwards. They had never been painful, unless injured by a blow. She feels quite well generally, and states that she knows no cause for the disease.

The characters of the affected parts were as follows:

Between the eyebrows, towards the right side, there are two rounded sores, which contain sloughs in the centre. The edges are raised and red, and the redness extends downward towards the root of the nose.

Examination of the eyes revealed the fact that there was keratitis, with diffuse corneal opacities and slight circumcorneal injection of the left eye, with greatly diminished visual acuity. No complaint was made regarding the right eye.

After due consideration of the history and the symptoms, the suspicion was that the disease might be tubercular in nature, and treatment was accordingly directed towards improvement of the general health. She was ordered to take cod-liver oil, in increasing doses up to 3 oz. daily. Appropriate treatment was ordered for local application to the eye. The crusts were removed from the sore on the brow, and acid nitrate of mercury applied.

On 10th April an acute middle ear affection set in, for which she was treated by Dr. Barr.

Practically no improvement took place either in the condition of the sore or of the eye, which latter, indeed, steadily grew worse.

On 28th April she complained that for the last ten days she had been troubled by seeing dark spots dancing before the right eye. Ophthalmoscopic examination of this eye revealed neuro-retinitis, with a large patch of effusion extending from the outer edge of the disc to near the macula.

It began now to be a question whether the diagnosis had been correct, and, in view of the failure of treatment, it seemed advisable to try the effect of antisyphilitic in place of antistrumous remedies, when, by the merest accident, it was ascertained, in the course of a chance conversation with the patient's former medical attendant, that he had, about thirteen years previously, treated her for acquired syphilis with mercury and iodide of potassium.

Treatment by inunction with mercurial ointment was commenced, and almost immediately marked improvement took place. By 13th

June the sore on the brow had almost healed ; the keratitis in the left eye and the neuro-retinitis in the right had subsided. She left on 19th June, the eyesight being almost completely restored.

### INTERSTITIAL CORNEITIS AND AFFECTION OF THE KNEE-JOINTS CONSEQUENT UPON HEREDITARY SYPHILIS.

CASE 6.—R. B., æt. 7, was admitted to Ward 7 on 21st May 1895, complaining of pain and swelling about the knee-joints, of four weeks' duration.

There is a history of syphilis in his mother, and the child, although hitherto able to go about and attend school, has always been very delicate. He had whooping cough at two, and congestion of the lungs at four years of age.

Four weeks before admission he complained of pain in the knees, and his mother then found that both were swollen, hot, and tender to manipulation. Under medical advice he was put to bed, and fomentations and ointments applied, but without success. The pain increased, and the mother noticed that he lay with the legs drawn up, and that the skin over the joints was warmer than elsewhere. No other joints have been affected, nor does she think he has been feverish. The following is the report of his condition on admission :—

“Both knees present a uniform swelling, which obscures the natural conformation of parts and the relations of the bony prominences. The swelling is of a tense, elastic, and semifluctuant character. The patellæ are raised a little from the underlying parts, but do not, when tapped, give quite the usual sensation of being floated in a fluid, although there can be little doubt that some fluid is present. There is a distinct bulging to the inner and also to the outer sides of the joints, and this is increased in proportion to the amount of flexion. The lower end of the femur and the head of the tibia are enlarged in both limbs, the temperature of the overlying skin is raised, and there is slight redness.

“The patient is unable to extend the legs, owing to the swelling and to the pain experienced, but flexion is not affected to such an extent, for, by exerting slight pressure, the movement can be made almost normal in extent.

“The eyes are the seat of active interstitial keratitis, most advanced in the left.

“The lungs, heart, liver, and kidneys are normal.”

*Treatment and progress.*—Treatment first consisted of rest and ordinary diet, with half-drachm doses of iodide of starch thrice daily. After ten days, during which time improvement had been but slight, mercurial ointment was applied daily round the knees, and the starch iodide was stopped. By 20th June there was great improvement. The

legs could be almost fully extended, and the patellæ could be moved from side to side. Thickening of the bones was still marked, but the tenseness about the joints had almost disappeared. The keratitis was taking its usual course, clearing up in the left eye, while now at its height in the right.

On the 2nd of August a note was made that both legs could be fully extended and manipulated without causing pain. There was still thickening of bones and synovial membrane, with a certain amount of fluid in the joints.

He made good progress, and was sent home on the 28th of September. His knees had been massaged during the last month of his stay, and had greatly improved. Though hobbling a little, his gait was very much improved. There was still bony thickening, but the fluid had all disappeared from the joints, and no pain was complained of on manipulation. The corneæ had cleared up well.

CASE 7.—M. K., æt. 10, a schoolboy, was admitted to the Western Infirmary on 17th February 1896, complaining of painful swelling of the knees and of an affection of the eyes.

About Christmas of the previous year he was troubled with pains in his abdomen, not apparently localised to any particular region, which passed off in a few days under simple treatment. Thereafter he began to complain of pain and stiffness in his knees, which were observed to be swelled. This stiffness and swelling have gradually increased, and with that there has been a proportionate aggravation of the pain. To the pain there has latterly been added great tenderness. The pain is not very severe in character, being rather a dull aching, but towards evening there is a marked exacerbation, which persists for some hours. Five weeks before admission his eyes became sore, and these also have gradually got worse, so that now he never exposes them to the light.

On admission, patient is seen to be a pallid, weakly boy, somewhat emaciated, and with flabby muscles. His brow is prominent and his head somewhat flat on the top, but the configuration of his face otherwise is normal. He lies in bed in dorsal decubitus, with his legs pulled up and his eyes shut.

Examination of the organs in the chest and abdomen reveals no abnormality. In particular, the spleen and liver are normal as regards size, etc.

The knees are for the most part similarly affected. Both are uniformly enlarged, the bones, as well as the other structures, taking part in the increase of size; indeed, the enlargement is mainly due to the expansion of the ends of the femora and tibiæ. The synovial membrane gives to the fingers the impression that it is thickened, and, on the right side especially, there is some fluid effusion into the joint. Both knees



are so tender that the merest touch makes the boy wince, and even careful manipulation causes him to cry. There is considerable elevation of temperature over the affected joints as compared with that of the normal skin, but there is a total absence of redness.

Neither knee can be extended beyond a right angle, and flexion further than this is very limited. Though this stiffness is partly due to muscular fixation, induced by the pain, yet it is evident that the structural changes are such as to preclude the possibility of the normal movements being carried to their full extent.

Dr. Hinshelwood reported on the condition of the eyes as follows:—

“With left eye patient can read Jaeger No. 20, the largest of the test-types, with difficulty; with right eye he cannot read any test-type or count fingers, but can see large objects moving.

“There is in both eyes typical interstitial keratitis; the corneæ have lost their lustre, and have the characteristic ground-glass appearance. There is diffuse opacity of the corneal surface, but here and there the opacity becomes denser, so that there are a number of areas of varying size where the opacities appear as distinct spots. The corneæ are also vascular, the vessels being most abundant in the right eye, where also the corneal opacity is greater. There is considerable circumcorneal injection. Under atropine the pupil dilates moderately well, but not completely.

“The character of the keratitis strongly suggests congenital syphilis as the most probable cause.”

The two central upper incisors are somewhat deformed, the right one in particular approaching very closely to the typical Hutchinson's tooth, the notch in the cutting surface being very well marked. The palate is highly arched and very narrow, but has not been the seat of any gummatous formation or of ulceration. The cervical glands, especially those in the superior triangles, are enlarged and hard, and quite freely movable in the surrounding tissue. At no part of the body are there any scars.

*Family history.*—Patient's father and mother are alive and well. So far as can be made out, his mother does not seem ever to have had any secondary manifestation of syphilis. She has been pregnant thirteen times. On the first four occasions she miscarried at periods varying from three or four months to almost the full time; the fifth ended in the birth of a living child, who had no symptoms of syphilis, but who died suddenly, æt. 13 (of heart disease); the sixth child is the patient, who had an eruption over the buttocks when 2 months old; the seventh is alive and healthy, but cannot speak, æt. 9; the eighth died, æt. 9 months, from “brain disease”; the ninth pregnancy ended in a miscarriage at fourth month; the tenth child is alive and healthy; the eleventh died, æt. 5 weeks, with eruption on skin; the twelfth is alive

and healthy, æt. 2 years; the thirteenth is 2 months old, and suffers from "snuffles," but has at present no eruption on the skin.

*Treatment.*—Mercurial ointment was rubbed over the affected joints, and then applied spread upon pieces of flannel.

Under this treatment the affection of the eyes rapidly, and that of the joints more slowly, subsided, and in a short time a result equally favourable to that in the last case was obtained.

### TREATMENT OF SYPHILIS BY INJECTIONS OF SYPHILITIC ANTITOXIN.<sup>1</sup>

CASE 8.—J. C., æt. 22, labourer; admitted to Ward 5 on 11th November 1895, suffering from a skin eruption of four weeks' duration.

The family and personal history reveal nothing of importance in connection with his present illness.

Seven weeks before admission he exposed himself to contagion, and a fortnight afterwards he noticed a discharge from the urethra associated with pain on micturition. A week later there appeared a hard chancre on the glans just at the corona, and this was followed in a fortnight by an eruption on his skin, which chiefly affected the head, buttocks, and trunk. During the appearance of the eruption he suffered very considerably from pains in his legs and from headache, both of which were worse at night. A week before admission he began to feel his throat sore and his voice became hoarse, but this hoarseness was out of all proportion to the pain. There was no pain or itching in connection with the eruption, and little exudation, except where pustules formed.

On examination, the chancre was found to be healed, but at its site there was great induration. The inguinal glands were very hard and enlarged. The eruption was chiefly on the face and trunk, but the limbs were also slightly affected. It was symmetrical, coppery-coloured, dry, and scaly. It consisted of rounded discrete patches. Most of them were slightly elevated, and they varied in size from that of a pin-head to a halfpenny. In the region of the anus there were a few condylomata. On the tongue were several superficial erosions, and on the buccal mucous membrane there were large elevated mucous plaques, and on the lips a few smaller ones. At the junction of the oral mucous membrane with the skin there were fissures on both sides so deep that when touched they bled. There was slight superficial ulceration of both tonsils.

On 15th November he was placed under treatment by hypodermic injections of serum, obtained by the application of fly-blisters from a

<sup>1</sup> See article by Mr. Cotterill, in the *Brit. Journ. Dermat.*, London, November 1895, p. 349.

patient suffering from well-marked syphilis (see below). The injections were given on an average every second day, and were continued until 9th December. The quantity injected at first was  $\frac{1}{2}$  c.c., and this was gradually increased until on the last four occasions 5 c.c. were injected. In all,  $35\frac{1}{2}$  c.c. of serum were injected,—approximately,  $1\frac{1}{4}$  oz.

On 11th December the induration at the site of the chancre was less marked. The glands remained unchanged. The skin eruption had entirely disappeared, only the stains remaining. The erosions on the tongue were healed, and the mucous patches almost gone. The ulceration of the tonsils had healed, only scars being visible.

On 21st December he was dismissed, still further improvement having taken place.

The following is a short outline of the patient, J. M'K., æt. 28, stableman, from whom the serum for the above treatment was obtained:—

Two years ago he had a single sore on the penis, with enlargement of the glands in the groin. This was followed by nocturnal headaches, pains in the limbs, and a skin eruption, which disappeared under treatment. He had always been hoarse, but does not remember having a sore throat. His hair had fallen since he contracted syphilis. A year ago he was under treatment in Ward 5 for “syphilitic psoriasis.” When the serum was obtained from him, he had three rings of eruption on the skin,—one on the right arm, another on the left side, and the third on the nape of the neck. Each was dusky in colour, tuberculated, dry, and insensitive.

#### TWO CASES OF SYPHILITIC DISEASE OF THE NOSE, PRESENTING ALMOST IDENTICAL CHARACTERS, CONTRASTED, THE ONE TREATED WITH IODIDE OF POTASSIUM AND CALOMEL OINTMENT, AND THE OTHER WITH ANTISYPHILITIC SERUM.

CASE 9.—(a) W. M., æt. 42, a druggist, was admitted to the Western Infirmary on 21st July 1896, complaining of an eruption on the nose of three months' duration.

Twenty-two years ago he had a chancre, followed by a bad sore throat, but no alopecia or cutaneous manifestation. At that time he underwent a course of mercury and potassium iodide for one year, and since then no symptom has occurred referable to the specific virus prior to the present affection. He married twelve years ago, and his wife had four of a family. The first one was still-born, the second died when 17 days old of “inflammation of the bowels,” the third of “intussusception,” æt. 7 months, and the fourth of “infantile paralysis,” when 23 months old.

He felt the inside of the nose sore about three months ago, and had it burned three times with chromic acid. Shortly after this he observed



a crust forming at the margin of the right nostril, which, when taken off, left a depressed circular scar with irregular edges. About the same time a vesicle appeared on the point of the nose; this was elevated, and "leeted" a little at first, but gradually became depressed, larger, and irregular on the surface, and presented worm-eaten edges. This round, irregular ulceration extended without the formation of crusts, and similar spots developed round about it with the same characteristic margin. These patches ran together, forming an irregular, dry, ulcerated, depressed mass of brownish colour, surrounded by an area of inflammation. He felt it itchy, but never painful.

He is a healthy-looking, well-nourished, well-developed man. There is a distinct scar on the penis, and the glands of the groin are enlarged and hard. The whole point of the nose presents a number of more or less round, irregular, depressed ulcers, with many yellowish brown bases and warty irregular edges. These worm-eaten, irregular surfaces run together, and vary in size from a split pea to a bean. The ulceration extends down the septum of the nose on to the lip. The ulcerated portions show a tendency to cicatrise. Around and between the ulcers the skin is red and the parts swollen.

He was placed upon 10 grs. of potassium iodide, increasing to 30 grs., three times a day, and locally had a calomel ointment (1 drm. to 1 oz.) applied.

*24th July 1896.*—Already there is a distinct tendency to healing. The redness surrounding the ulcers is less, and the bases of the ulcerated patches are becoming dry, clean, and warty.

*7th August.*—The nose is gradually resuming its natural colour, and all signs of inflammation are subsiding. The swelling has entirely disappeared, and the margins of the ulcers are less elevated, while the bases are less depressed. There is no tendency to further ulceration.

*21st August.*—To-day the patient was dismissed, but was advised to continue treatment for some time.

The nose had quite a healthy appearance and colour, but presented a series of shallow depressions of a brownish tint, the bases of which were somewhat warty, and the edges irregular. These caused little disfigurement.

**CASE 10.**—(*b*) D. H., æt. 38, a labourer; was admitted to the Western Infirmary on 30th June 1896, complaining of an eruption affecting the nose and upper lip, of six months' duration.

His father died, æt. 46, of heart disease; his mother, æt. 50, of apoplexy. He has four brothers and two sisters alive and healthy.

Until last summer he enjoyed, he said, perfect health. At that time he had an attack of pleurisy, from which he made a good recovery in a few weeks. But twelve years ago he had a single sore on the penis

and a suppurating gland in the right groin. This was not accompanied or followed by sore throat, eruption, or alopecia.

Six months ago a small papule developed on the bridge of the nose. This was slightly itchy, and he scratched it, and afterwards a thick yellowish green crust developed. It increased in size, and was surrounded by an inflamed zone. The margins of the ulcerated patch slowly extended over the entire nose and to the upper lip. It healed in the centre, while it extended at the periphery, leaving a glossy, irregular, worm-eaten scar. It has been itchy sometimes, but never painful. His general health has been a little impaired. The bowels are regular.

He is a well-nourished man; complexion sallow. There is a distinct scar on the dorsum of the penis, and a dull coppery scar in the right groin. The glands in the groin are enlarged and rolling, as well as those above the elbows on the inside of the arms. There are no evidences of any past ulceration of the throat or cutaneous manifestations. The present ulcer is situated over the entire nose and the upper central part of the upper lip. Above and below, it is covered with thick yellowish green crusts, while its central portion, including most of the nose, is entirely healed and of a livid coppery tint. This healed portion consists entirely of depressed, glossy, worm-eaten, cicatricial tissue, which had previously been the seat of ulceration. The hair on the part of the lip which the eruption has invaded is destroyed. The whole patch is surrounded by an inflammatory redness. In fact, the appearances were almost identical with those described in the last case.

On 4th July, 2 c.c. of Burroughs and Wellcome's antisyphilitic serum was injected, and this was repeated every second day. The injections were followed by no constitutional symptoms, the pulse, respiration, and temperature remaining unaltered, and the only local change detected was slight increase of the exudation below the crusts, and a suspicion of some inflammatory redness surrounding them.

*20th July.*—The colour of the cicatrised portion has gradually become of a lighter shade. The amount of ulceration appears the same as when admitted. It has not extended farther, and the crusts are thinner and drier, while the inflammatory area surrounding them is less obvious.

*30th July.*—The signs of inflammation surrounding the patch are further subsiding, and the amount of crusting is lessening.

*1st September.*—Since last note 2 c.c. have been injected daily. The entire nose is now healed, and the ulceration on the lip has completely subsided, except at the left inferior corner. At this point there is a depressed ulcer with irregular worm-eaten edges, which has slowly extended for one week, and is surrounded by an area of inflammatory redness. Yellow-green crusts keep forming on the top of this ulcerated surface. The colour of the nose is less livid, and becoming more of a light coppery tint.

11th September.—The injections have been continued, but still the ulceration slowly extends at the point indicated above. It was therefore decided to discontinue the treatment.

A CASE OF SYPHILIS OF THE TONGUE, TREATED BY MEANS OF  
SUBCUTANEOUS INJECTIONS OF PERCHLORIDE OF MERCURY.

CASE 11.—J. M'D., a bill-poster, æt. 46; was admitted on 2nd May 1876, complaining of headache and pain in the shoulders, ulceration of mouth and tongue, hoarseness, and eruptions on the body.

Twenty-three years previous to admission he contracted a chancre on the penis. During the following two or three years an eruption was at times visible on his body; but this ultimately disappeared, leaving him in tolerably good health, with the exception of a headache, which then began to trouble him occasionally. The headache, which was at first not very troublesome, became year by year more severe in character and more frequent in its occurrence. On admission the pain was confined chiefly to the left side of the head; and, in addition to this hemicrania, there were experienced pains in the shoulders of seven years' duration. Nocturnal exacerbation was a marked feature of these pains. The hoarseness and affection of the tongue and mouth began about a year previous to admission.

On examination, there was found on the left side of the tongue an indurated mass, with abrupt and elevated margins, and near this an excavated ulcer. An ulcer with raised edges was also seen at the left angle of the mouth on the mucous surface, and a smaller one on the left anterior pillar of the fauces. The inguinal glands were found to be enlarged, but the other superficial glands were unaffected. Maculae were seen on several parts of the body, as well as an eruption of small rounded erythematous spots, which were not itchy. There were some bald patches on the head, and the remaining hairs could be pulled out very easily.

Treatment was commenced on the 4th of May. One-sixth of a grain of perchloride of mercury and one-sixth of a grain of muriate of morphine were prescribed, for subcutaneous injection, and repeated daily. These injections were continued until the 14th of May, when it was found necessary to intermit them on account of soreness of the gums. Even at this early period in the treatment, when only eleven injections, or nearly 2 grs. of the perchloride, had been administered, a considerable improvement had taken place in the condition of the ulcers. On the 24th of the month the injections were resumed. Fourteen more had been given, when they were again stopped on account of a recurrence of the soreness of the gums, and also because of the absence of any indications for their continuance. The pains complained of had

completely disappeared, the voice had improved, the eruption was gone, and the ulcers were healed, the tongue being restored to its normal appearance. The total quantity of perchloride of mercury used was  $4\frac{1}{6}$  grs.

On the 15th of June 1 oz. of cod-liver oil and 30 minims of syrup of the iodide of iron were prescribed, to be taken three times a day, and in the beginning of July he was dismissed well.

Twenty-three years having elapsed since the entrance of the syphilitic poison into the system, most physicians would have said that this was a case not for mercury, but for iodide of potassium. But I am one of those who believe that the results obtained from the latter drug are not nearly so permanent as those derived from the former, and that mercury is even more potent against the late than it is against the very earliest manifestations of syphilis, provided the general health admits of its free administration. Those who have had much experience of the treatment of tertiary syphilitic tongue must know that sometimes iodide of potassium cannot remove the syphilitic deposit, and that a few grains of perchloride of mercury given by the mouth could not cause it to disappear. It is therefore very gratifying to find that 4 grs. of this medicine, administered subcutaneously, may cure one of the most obstinate of the late manifestations of syphilis.

The only drawback to the subcutaneous injection of corrosive sublimate is, that it is very irritating and gives pain, and in some cases produces abscesses. This, however, was obviated entirely by first freezing the skin with a piece of ice sprinkled with salt, then injecting  $\frac{1}{6}$  gr. of muriate of morphine in solution, leaving the needle *in situ*, disconnecting the syringe, filling it with the perchloride solution (containing  $\frac{1}{6}$  gr. of the salt in 15 minims of distilled water), and injecting it after a few minutes at the identical spot where the morphine had been thrown in.

### III.

#### MALIGNANT PUSTULE IN TWO SISTERS.<sup>1</sup>

THE admission of two such cases to the Western Infirmary is worthy of notice, both on account of the gravity of the disease, and of its comparative rarity in this quarter. The patients are sisters, and were employed in a hair factory. Their work consisted in teasing out hair, and picking straw and other impurities out of it. They had been engaged at this occupation only for a few weeks. During the process there is much dust raised, and the expectoration of the cleaners, while engaged in it, is quite black.

CASE 12.—The younger sister, æt. 14, was first attacked. She was admitted to the hospital on 12th July. The history of her case is as follows:—On Saturday, 5th July, she was at her work as usual. On returning from it, and while washing her face, she noticed a small pimple on the left side of her neck, below and a little in front of the angle of the jaw. Next day her neck was somewhat swollen, though not painful, but otherwise she was quite well. On the following day (Monday) the swelling had increased, and she did not go to work, but called in a medical man, who gave her an ointment to apply to the part. During the next three days the pimple increased in size, and the swelling became much greater. On Thursday the pimple broke, but there was no discharge; and on that day the swelling of the face and neck reached its maximum, being so great as to cause closure of both eyes, and to render it a difficult matter to feed her, from her inability to open her mouth. She was admitted to the hospital on the following Saturday. On her admission, the face and neck were still much swollen, the swelling being hard and tense, but not tender to the touch; occupying the site of the pimple, also, there was a black circular patch, about 1 in. in diameter. Around this, for a radius of 3 in., the skin was of a purplish red hue, and erysipelatous-looking, with darker purplish streaks here and there. The boundary of the reddened portion was quite well defined, and it did not shade off into the surrounding

<sup>1</sup> Reported by W. G. Dunn, M.D.



skin. On 17th July the swelling had decreased to some extent, but otherwise the appearances were much the same. There was noticeable, however, surrounding the black spot spoken of, a distinct inflammatory zone or line of demarcation, dividing the blackened portion from the surrounding red skin. During all this time the patient had little or no constitutional disturbance. She was not at all sick, had no shiverings, and took her food fairly well. The temperatures noted throughout the illness were, on an average, very slightly above the normal. The area of dulness over the spleen was enlarged, but this organ could not be felt projecting from beneath the ribs. The urine was of rather high specific gravity at first, but otherwise quite normal.

On admission, the treatment adopted was the administration of salicylic acid in 15-gr. doses, twice daily, and the assiduous application of poultices to the neck. Milk diet and soup were ordered, and the patient was fed hourly. An improvement took place in her condition from the time of her admission. The swelling gradually subsided, ulceration took place round the blackened portion before mentioned, and on 31st July the slough was removed and the part washed out every morning with carbolised water, the application of poultices being still continued. The salicylic acid was now stopped, a tonic mixture of iron and quinine being substituted, with 4 oz. of port wine. The favourable condition of patient was maintained; but some burrowing having taken place in the neck, it was found necessary, on 7th August, to make a counter-opening to allow of the escape of pus. Practically, however, the patient may be said to have recovered from the effects of the serious complaint for which she was admitted.

CASE 13.—The second case was much slighter, and need not be so fully related. The patient, *æt.* 17, is, as already stated, a sister of the former patient. The pustule had the same situation as in the first case. The swelling of the face and neck was never so great as in the other. It broke spontaneously two days after it was first observed; a considerable fall in the swelling then took place, and a small open sore was left. When admitted, on 18th July, there was still some swelling of the face and neck. The treatment was quite the same as in the former case, and the patient was dismissed well on 6th August.

A specimen of the blood was obtained and preserved by Dr. Coats. At first nothing abnormal was observed on microscopical examination, but in the course of a day or two numerous motionless rod-like bodies were found in the preserved specimens. In the second case a microscopical examination of the blood was made, but nothing abnormal was discovered, either when the blood was newly drawn, or four days after.

## IV.

### THE TREATMENT OF MYXŒDEMA.<sup>1</sup>

If reference be made to recent standard works on medicine, there will be found, in most of them, admirably lucid pictures of the symptomatology of myxœdema; but treatment is not referred to at all, or the suggestions made are, for the most part, vague and unsatisfactory. Thus one writer says:<sup>2</sup> "As to treatment, little or nothing can be done"; and in Osler's very able and excellent work<sup>3</sup> that writer observes: "Unfortunately no satisfactory treatment is known. The patients suffer in cold and improve greatly in warm weather. They should therefore be kept at an even temperature, and should, if possible, move to a warm climate during the winter months." Dr. Ord, however, takes a much less pessimistic view of the situation, and his remarks on treatment are as follows: "Something may be done by keeping the patient carefully sheltered from the cold; something by tonics; something by good food. Though these will not cure, they will at least help the patient to bear her sufferings better. Of late the writer has found in two cases benefit from the use of vapour baths. In three others, under the prolonged use of jaborandi, the signs of myxœdema have almost disappeared. . . . Nitroglycerin has benefited one case. Sir Andrew Clark regards the disease as fairly curable by careful diet, iron, arsenic, baths, and assiduous frictions."<sup>4</sup>

My own experience is corroborative of most of the above remarks, for I am led to the conclusion that much may be accomplished from a line of treatment naturally suggested by the character of the symptoms, and by the circumstance just mentioned,—that these patients suffer in cold and improve greatly

<sup>1</sup> Read at the Meeting of the Glasgow Medico-Chirurgical Society on December 16, 1892.

<sup>2</sup> "Reference Handbook of the Medical Sciences," 1887.

<sup>3</sup> "The Principles and Practice of Medicine," 1892.

<sup>4</sup> Quain's "Dictionary of Medicine," 1882.

in warm weather. The following case may be cited as an illustration :—

CASE 14.—Elizabeth G., æt. 20, weaver ; came under my care on 24th May 1884, complaining of great weakness, swelling of the legs and feet, shortness of breath, and “shivering in the inside.” Her father, two brothers, and two sisters are alive, two were born dead, and two died of measles. Her mother succumbed to phthisis at the age of 40. When 15 years of age she had a slight attack of scarlet fever, followed by dropsy and convulsions, from which she fully recovered. A year ago, after a cessation of the menses for twelve months, the first symptom of her complaint was noticed, namely, swelling of the face and lower extremities, and about this time her friends told her that she was becoming stout. Her appetite failed, she became very thirsty, and noticed that she was passing less water than usual, sometimes only a small quantity once in the day. She also began to suffer from headaches in the frontal, and especially in the right temporal region, and here, she states, a swelling appeared, after which the pain subsided. It generally lasted one or two hours, and was usually worst at night. The hair became loose and came out freely on combing, the skin became harsh and rough, especially that of the arms, and was sore and cracked, irrespective of the weather. She never perspired. After these symptoms had continued for about eight weeks, the menses reappeared, and it was about that time she first experienced the sensation described by her as “shivering of the inside.” Although the weather was warm, she would become pale when at work, the teeth began to chatter, and she shook so that she could not do her work properly. When she rose in the mornings her feet were cold, and she did not get warm till the afternoon. Menstruation continued very irregular, an interval of three months sometimes elapsing ; and at the periods she suffered from extreme lassitude, and occasionally fell asleep at her work.

Six months after the onset of her complaint, bodily movements began to be slowly performed, and she commenced to speak with a drawl, to such an extent that her friends remarked upon it. As the disease advanced she became gradually weaker, and on the day of admission could hardly stand.

She was in the Infirmary, under the care of a colleague, from 26th November 1883 until 19th January 1884, and her illness is called in the ward journal “Acute Bright’s disease,” but there was no albumin in the urine.

*Condition on admission.*—Patient is short and thick-set in build, and says that her parents and brothers and sisters are also short. Her appearance reminds one of cases of renal dropsy, but the cheeks have a slightly livid colour. The features are thick and coarse, and the general look



stupid and apathetic. The legs and feet look œdematous, but prolonged and firm pressure scarcely yields any pitting. The hands are short and broad, but can hardly be called spade-like. The skin, especially that of the legs and arms, is very coarse. She walks slowly and deliberately, with a curious kind of "waddle"; she speaks with a slow monotonous drawl, and takes a long time to write a few words. Notwithstanding these delayed physical movements, she is intelligent, and the operations of the mind do not seem to be impaired. Her temperature varies from 96° to 97°, and she complains of excessive weakness.

*Treatment.*—A mixture containing strychnine and arsenic was prescribed, and she was shampooed daily for half an hour. Every third day in rotation she had the following treatment:—First day, a vapour bath; second day,  $\frac{1}{4}$  gr. of pilocarpine subcutaneously; third day, a hot electric bath for half an hour. Each of these procedures made her perspire profusely. The roughness of the skin was very apparent during the shampooing, for the friction was audible at a considerable distance from the bed, and made the nurse's hand quite sore.

Within ten days improvement was manifest. The skin became smooth and soft, and when pinched up felt almost natural. She also felt warmer, and the "shivering of the inside" and the headache completely disappeared. On 8th June she began to menstruate freely, and the diaphoretic treatment was omitted for a week. On 7th July she refused to continue the electric baths, because she said that they "frighted" her.

With these exceptions the treatment was continued until she left the hospital on August 8, when the following notes were taken:—

The appetite is good; there is no headache; the urine is normal in appearance and character, and from 40 to 60 oz. are passed in twenty-four hours. There are no "shiverings in the inside." The swelling of the face and feet is entirely gone, and the skin is soft and smooth. The movements are more active, and she is much more sprightly. The drawl in speaking is much less, and she herself says she is "an awful lot better."

The method of treatment recently introduced, and with such astonishing results, of administering the thyroid gland of the sheep or pig, or a fluid extract, by the mouth or by subcutaneous injection, is not antagonistic, but is a complement to the method of treatment just indicated; indeed, there is no reason why they should not be carried out simultaneously. This new therapeutic agent is the outcome of a more thorough knowledge of the pathology of myxœdema, and of a comparison of the symptoms with those observed after removal of the gland by operation

(*cachexia strumipriva*), and in cretinism. For it is now certain that the essential feature of the disease is the destruction of the thyroid gland, and consequent absence of its secretion from the circulation, although the cause of the atrophy of the gland is still enveloped in mystery. The object aimed at, therefore, is to replace the secretion which is absent, and the results, so far, have vastly exceeded expectation. This is the unanimous verdict of all who have had practical experience of the treatment. The case which follows <sup>1</sup> is a good illustration of this.

CASE 15.<sup>1</sup>—M. J. C., æt. 30, was admitted to Ward 7, Glasgow Western Infirmary, on 18th August 1892, complaining of weakness and uterine hæmorrhage.

Her father died as the result of an accident, and her mother at 57, of the after effects of rheumatism. They had seven children, of whom four died in infancy. The patient's two surviving sisters are both married, one being strong and well, the other having had frequent miscarriages.

*Personal history.*—Menstruation began at the age of 16, and continued regularly for three years, when she had a flooding. For the following three months she was in a very weak condition. Another flooding then followed, and since that time menstruation has been very irregular, and floodings frequent. About the same time she began to grow languid and disinclined for exertion, and this condition became aggravated as time went on. Her mental faculties also became dull; her memory grew weak, and her friends noticed a gradually developing childishness. She also lost colour, and has now become very pale. During the last three years a universal swelling of the body has made its appearance.

*Present condition.*—The skin is very dry, waxy, and pale, with a tendency to lividity of the cheeks and lips. The whole body is markedly swollen and puffy. The œdema is solid, hardly pitting at all upon pressure. The head is covered with scurf, and there is a tendency to alopecia, the hair falling out very readily, and being very easily plucked out. There is marked anæmia. Speech is defective, the articulation being slow and indistinct, and the patient appears to be mentally weak. The thyroid gland is very small. On either side of the neck, behind the sterno-mastoid, there is a large soft swelling. The temperature is subnormal. The heart is perfectly healthy. The urine is very scanty, but contains no albumin.

*Treatment and progress of case.*—The patient was confined to bed, and kept under observation for a time before treatment was begun. The

<sup>1</sup> Reported by William R. Jack, M.D.

quantity of urine varied between 20 and 30 oz. in twenty-four hours; and the temperature between 97° and 98° F., falling sometimes as low as 96°·4. On 16th September the following mixture was given:

R	Liquoris arsenicalis . . . . .	℥lxxx.
	Tincturæ ferri perchloridi . . . .	ʒiii.
	Glycerini . . . . .	ʒi.
	Infusum calumbæ . . . . .	ad ʒviii.

*Sig.*—Half an ounce thrice daily.

On 30th October it was noted that the œdema was not in the least affected, and the urine remained as scanty as before, but the anæmia had improved considerably, and the temperature rose, so that from 24th October to 30th October it reached 98°·6 on four occasions, and never sank below 97°·8.

On 31st October the administration of thyroid juice was added to the treatment. A bottle of Dr. Murray's extract, prepared by Messrs. Brady and Martin, and containing about 80 minims (two-thirds of extract of one thyroid), was sent weekly from Newcastle, and of this a fourth part was given by the mouth on four consecutive days, after which an interval of three days elapsed before any more was administered. On 31st October the patient weighed 9 st. 3 lb. The temperature at first fell slightly, and within a few days of the beginning of treatment it was noticed that the face was appreciably thinner; by 20th November the whole skin had become distinctly less tense, pitting more readily over the legs, while over the hands the swelling had almost disappeared, and folds of skin could be readily pinched up. On 14th November the weight was 8 st. 6½ lb. Mentally, also, she seemed more alert. The pulse varied as a rule between 80 and 90 beats per minute, falling sometimes to 74, and rising once to 96; and the respirations varied between 21 and 24 per minute. The urine continued scanty, according to the patient's account, but it appears not to have been measured. On 17th November she was able to rise in the afternoons, and the feet were very much less swollen. On 21st November the weight was 8 st. 3 lb., and the swelling had almost entirely disappeared. The skin, however, was still very dry. The temperature had now begun to rise, and from 19th November to 22d November remained at 98° F. On the 23rd it rose to 98°·4, where it has remained till the present date (25th November). Menstruation is regular and not excessive in quantity.

The last report, taken 14th December, was as follows: "The hæmacytometer shows that the corpuscles number 3,400,000 to-day, as compared with 3,040,000 per c.mm. on 12th November. Patient is of opinion that she is quite well. The swelling of the body is gone, although there is still a very little fulness behind the sterno-

mastoids, on the left side at all events. Weight, 8 st.  $1\frac{1}{2}$  lb., being a fall of 1 st.  $1\frac{1}{2}$  lb. since October 31. The mental and bodily hebetude has entirely disappeared, and the speech and intellectual faculties are perfect." Figs. 4, 5, and 6 illustrate in a striking manner the change in the appearance of the patient.



FIG. 4.—Shows the condition on 31st October 1892, the day upon which the treatment with thyroid extract was commenced.

It is interesting to compare the administration of thyroid extract by the mouth with its use subcutaneously, and a good illustration is afforded by a case, published in the *Glasgow Medical Journal* (September 1892) by Dr. Napier, of which an abstract is given in the January (1893) number of the *Practitioner*, London (p. 56).

We generally find that remedies administered by the mouth are not nearly so prompt in their action as when they are given by subcutaneous injection; but this rule does not seem to hold with regard to the use of thyroid extract. And it is fortunate if



FIG. 5.—Shows the condition on 5th November 1892, five days after treatment was commenced.

this is so, because its subcutaneous administration has serious drawbacks, some of which occurred in the case just referred to.

Subcutaneous injection occasionally gives rise to alarming symptoms almost immediately after injection, such as tonic spasm and loss of consciousness, especially if the remedy is not introduced very slowly.



Indurations and abscesses are apt to result at the seats of puncture, even when every care is taken. Thus, in the case just referred to, there were indurations, which at one point terminated in abscess, accompanied by fever and other constitutional symp-



FIG. 6.—Shows the condition on 29th November 1892, four weeks after treatment was commenced.

toms, which interfered with the continuous administration of the remedy.

In order to prevent relapses, the treatment must be repeated from time to time, and this can be much more conveniently done when the extract is given by the mouth.

It would be premature to speak positively with regard to the curative effect of this new remedy. That it gives great relief

and dissipates all the unpleasant symptoms in a comparatively short space of time is now placed beyond doubt. But the evidence, so far, tends to the conclusion that, after the treatment has been suspended for a time, there is a tendency to a recrudescence of the symptoms. And, in the nature of things, this is what we might reasonably expect, seeing that an atrophied thyroid is as little likely to be restored as an atrophied testicle. But even if it is necessary for patients to swallow a dose of the extract once a week for the rest of their lives, this is no greater evil than falls to the lot of many healthy persons, of having permanently to resort to the use of aperients for the relief of chronic constipation, and which is borne with equanimity.

So that, from whatever point of view we regard it, there can be no doubt that a valuable new remedy has been discovered for the relief of a very serious disorder, and one which may pave the way for similar discoveries in other fields.

## V.

### CASE OF ANÆMIA, WITH WELL-MARKED DROPSY OF THE FACE AND LOWER EXTREMITIES.

CASE 16.—A. G., æt. 21, telephone operator ; was admitted to Ward 7, on 9th January 1893, complaining of swelling of the feet and legs of three months' duration.

Both her parents were dead,—the father at 56 of “stoppage of the bowels, the mother at 48 of a tumour of the liver.” Of their seven children six survive. One died at 13 of inflammation of the bowels ; the rest are alive, and, except the patient, well.

Her own health in the past has been good. Three years ago an accident to her right knee kept her in the Kilmarnock Infirmary for six weeks. During part of this time both her legs were swollen, but this passed off a fortnight before she left. It returned soon afterwards, and she went to the Glasgow Royal Infirmary for advice. There she was told that both her legs and knee were quite well, and shortly afterwards the swelling disappeared. She remained in good health till the onset of her present illness.

Four months ago, probably as the result of a wetting, her ankles, and soon afterwards her legs, again began to swell. Except for this she felt perfectly well, there being no feverishness, rigor, or any other symptom, except slight pain in the back. The swelling was at first very considerable. Within three weeks of its appearance she noticed that her eyes and face were swelled on rising in the morning. This disappeared as the day advanced, while the legs became more swollen. These symptoms have persisted until now, and are all that she complains of. She has never noticed any change either in the quantity or the colour of her urine, nor has she had any headache. Her sight is perfect. The appetite is good, and the bowels were always regular until she took to bed ; since then they have become somewhat costive. She has no cough, dyspnœa, or palpitation. She menstruates regularly.

On examination she is noticed to be pallid. This, she says, appeared at the beginning of her illness. The second aortic sound is slightly accentuated, but there is no increase of cardiac dulness, nor any murmur. The pulse gives to the finger the characters of slightly increased tension,



but this does not appear in the sphygmogram. The other organs are healthy. There is considerable œdema of the feet, legs, and face. The urine is faintly acid, of specific gravity 1021. It contains neither albumin nor sugar. Abundant epithelial cells are present. The quantity varies between 30 and 40 oz.

On 23rd January, after being under observation for some days, during which albumin was never found, the patient was put upon milk diet, six pints of skimmed milk daily, and "*potus imperialis*." She was kept in bed. On 26th January light food was substituted for the milk diet, and on the 1st February the skimmed milk and "*potus imperialis*" were replaced by an occasional injection of pilocarpine at night, and Blaud's pills with arsenic in the bipalatinoid form. Under this treatment she improved very rapidly, and left on 10th February. Albumin was never found in the urine, nor were casts ever observed, though frequently looked for. The anæmia had almost disappeared, and (on 7th February) the blood corpuscles numbered 4,140,000 per c.c. When she lay still in bed there was no œdema, but on rising the ankles became slightly swollen. From 1st February the quantity of urine had risen to 50 oz.

The symptoms present in this case were very unusual. The well-marked dropsy of the lower extremities and face, and the pallor, led to the provisional diagnosis of tubular nephritis, a suspicion which was, however, negatived by the total absence of albumin and casts in the urine, as well as by the futility of treatment directed against that condition. Those who hold that tubular nephritis may exist without albuminuria might quote this as a case in point, but, for my part, I do not believe in the existence of such a condition. Indeed, there can be no doubt that, prior to the differentiation of myxœdema, most cases of that disease were held to be illustrations of tubular nephritis without albuminuria. On carefully weighing all the symptoms, the balance of evidence seem to be in favour of this being an illustration of anæmia, and all the more as rapid improvement took place under the influence of arsenic and iron. At the same time, it must be admitted that marked œdema of the face is not a common occurrence in cases of anæmia.

## VI.

### PERNICIOUS ANÆMIA ; GREAT IMPROVEMENT ; DEATH FROM AN INTERCURRENT ATTACK OF INFLUENZA WITH PNEUMONIA.

CASE 17.—R. F., æt. 44, a clerk ; was admitted into Ward 2 on 30th November 1894, complaining of nervousness and weakness, accompanied by loss of colour, of ten years' duration.

His parents both died advanced in years,—the father at 68, and the mother at 78, but, of ten brothers and sisters, five died in infancy, one sister died of pleurisy, and another after childbirth ; so that, besides himself, only two are now alive.

Regarding his own health and habits, he had no illness that he remembers before the present one. He is a bachelor, a total abstainer, and although no history of venereal trouble can be obtained from him, he refers mysteriously to youthful indiscretions. Beyond this vague statement he cannot be got to admit anything.

The following is the history of the illness, somewhat ramblingly given :—

About twelve years ago, when employed in an unhealthy, damp office, in close proximity to an offensive privy, he suffered from a feeling of numbness in the feet and legs. There was no motor weakness, but the numbness spread upwards over the trunk and head. He could not get warm in bed. About this time, also, his digestion was impaired ; he was overworked, and became very depressed, and was overmastered by a feeling of business responsibility. He worked on for four or five years, getting through his business somehow or other, and then he noticed, for the first time apparently, that he was getting weak and very pale ; he suffered now from severe neuralgia. The climax arrived two and a half years ago, when he was obliged to give up business, because he could neither compose nor write a letter. He says that at this time the moment he attempted to settle down to do anything he was overcome by "excitement." Latterly there has been dyspnoea on exertion. He has not lost much flesh.

On examination, the principal points brought out were—(1) Pallor of skin and mucous membranes ; (2) great diminution in the percentage of

hæmoglobin, associated with an equivalent reduction in the number of corpuscles ; (3) cardiac murmurs and venous hum on both sides ; (4) retinal hæmorrhages.

1. The skin of the face presented somewhat the lemon-yellow tint which has been described as occurring in this disease. The hands had a waxy-white appearance. The conjunctivæ and lips were very pale.

2. According to the hæmacytometer and hæmoglobinometer in use in these wards, the corpuscles were 1,410,000 per c.mm., and the hæmoglobin 28 per cent.

3. Systolic murmurs were audible in the whole cardiac area and in the vessels of the neck. Venous hum was particularly marked on the right side.

4. Ophthalmoscopic examination revealed pallor of the disc and fundus, with well-marked hæmorrhages, some round, others flame-shaped, in the right retina.

Although, as will afterwards appear, the ultimate result was death through what may fairly be described as an accident, the progress of the case under treatment was sufficiently interesting.

Treatment began on 1st December, with regulation of bowels, a course of tincture of calumba, and of course rest in bed. His weight was 7 st. 13½ lb., and (on 4th December) the hæmoglobin was 28 per cent., and the corpuscles 1,410,000 per c.mm.

On the 5th of December he was ordered half an ounce of fresh bone marrow, daily, in a sandwich. The marrow was increased to 1 oz. daily two days afterwards. On the 9th December the hæmoglobin was estimated at 24 per cent., and the corpuscles at 1,300,000, the weight being 8 st. 2½ lb.

On 11th December arsenical treatment was commenced, and the order given was that he should have 5 minims of Fowler's solution, without lavender, hypodermically, once daily ; and also 5 minims Fowler's solution, thrice daily, by the mouth. The marrow was continued. On the 15th December the weight was 8 st. 2¾ lb., and on the 20th the hæmoglobin was estimated at 24 per cent., and the corpuscles 1,200,000.

On the 28th December it was noted that the patient's condition had practically remained stationary : the arsenic hypodermically was therefore gradually increased to 10 minims daily. On the 29th the weight was 8 st. 8¼ lb.

On 4th January 1895, the 10-minim hypodermic limit was reached, and the Fowler's solution by the mouth was increased by 1 minim daily. He was now taking a total of 25 minims of liquor arsenicalis daily. On the 5th his weight was 8 st. 11 lb., and on the 11th the hæmoglobin was estimated to be 40 per cent., and the corpuscles 2,010,000. On the 12th the weight was 8 st. 11½ lb.

An improvement had now obviously set in, shown not only by the examination of the hæmoglobin and corpuscles, but by the whole appearance and sensations of the man himself. The marrow was now stopped. By the 19th the weight had fallen to 8 st. 9 lb.

By the 21st January the total daily dose of Fowler's solution was 28 minims. On the 26th the weight was 8 st. 10 lb. On the 27th the hæmoglobin was 42 per cent., and the corpuscles 2,890,000 per c.mm.

On this latter day the dose had to be reduced, on account of symptoms of arsenical poisoning, to 20 minims daily. Under a continuance of this dose improvement was rapid, as may be seen on reference to the following table. Not only the rise in the percentage of hæmoglobin and the number of corpuscles indicated this, but also the improved appearance and feeling of well-being of the patient.

Date.	Treatment by Arsenic.	Hæmo- globin.	Corpuscles.
1894.		Per cent.	
Dec. 9.	Before arsenical treatment . . . . .	24	1,300,000
„ 11.	Hypodermically, 5 minims Fowler's solution daily. By the mouth, 5 minims Fowler's solution thrice daily. Total, 20 minims .	...	...
„ 20.	„ „ „ „ „ „ „	24	1,200,000
„ 28.	Hypodermic increased by 1 minim daily .	...	...
1895.			
Jan. 4.	Hypodermically, 10 minims. By the mouth, 15 minims. Total, 25 minims . . . .	...	...
„ 11.	„ „ „ „ „ „ „	40	2,010,000
„ 21.	Hypodermically, and by the mouth, 28 minims daily . . . . .	42	2,890,000
„ 27.	Hypodermically, and by the mouth, reduced to 20 minims daily . . . . .	...	...
Feb. 10.	„ „ „ „ „ „ „	47	3,100,000
„ 17.	„ „ „ „ „ „ „	48	3,400,000
Mar. 3.	„ „ „ „ „ „ „	50	3,400,000

Most unfortunately, however, just as the full benefit of the treatment was beginning to be appreciated, influenza attacked him, pneumonia set in, and he died on 8th March.

## VII.

### ILLUSTRATIONS OF THE OCCURRENCE, AND OF THE GRAVITY, OF DIABETES MELLITUS IN EARLY LIFE.

AN interesting case of diabetes mellitus, in a girl æt. 9, is reported by Dr. William Frew<sup>1</sup> of Kilmarnock, and he there remarks upon the extreme rarity of the disease in children under 10 years of age. In this connection the following cases will probably be of interest:—

CASE 18.—On the 7th of July 1881, on the recommendation of Dr. M'Gowan of Millport, a gentleman called upon me, bringing with him a specimen of his daughter's urine. She was 2 years and 3 weeks old; and between five and six weeks before his visit, she began to droop; her appetite also failed somewhat, and she suffered from thirst, with progressive loss of flesh and strength. Her urine was pale (its quantity I could not ascertain), its specific gravity was 1038, and it was loaded with sugar. She died (9th July) two days after her father's visit to me, and before I had the opportunity of seeing her, *i.e.* within six weeks of the onset of her illness. A post-mortem examination could not be obtained.

CASE 19.—On the 8th January 1884, I was requested by Dr. Edward M'Millan to see with him a little girl, æt.  $2\frac{1}{2}$ , who had previously enjoyed good health.

Nine days before this time she fell, alighting upon her hands, and was not supposed to have hurt herself at all. The following day, and more or less thereafter, she suffered from the most intense consuming thirst, with profuse urination, and a tendency to coldness, lividity, and collapse. The day before my visit she was reported to have vomited everything.

When I saw the child, I found that the vomiting had ceased, but that the other symptoms continued. The pulse was of fairish strength, but was distinctly irregular as to force and time; there was some

<sup>1</sup> *Glasgow Med. Journ.*, May 1887.

emaciation, and the temperature registered 95° F. The quantity of the urine could not be ascertained, but it was very pale, intensely acid, specific gravity 1037, contained a slight trace of albumin, and a large quantity of sugar, the quantitative analysis with Fehling yielding 5 per cent. There were no head symptoms whatever. The treatment recommended was the administration of warm fluid food—saccharine and amylaceous matters being avoided—nutritive enemata, external warmth, and a teaspoonful of brandy every hour. Granules of morphia ( $\frac{1}{100}$  gr.) were to be continued, and cautiously pushed.

The day following my visit, Dr. McMillan wrote me that although the temperature the previous evening rose to 99°·8, no improvement in the symptoms occurred, and that the child gradually sank and died at 3.30 P.M. on the 9th of January, *i.e.* nine days from the first commencement of the symptoms.

A post-mortem examination was made by Drs. Coats and Steven; the brain was carefully examined, but nothing was found, with the exception of slight anæmia of the brain, and some fatty change in the renal epithelium, such as might be accounted for by the intense diuresis.



## VIII.

### HÆMIDROSIS.<sup>1</sup>

Syn., *Ephidrosis cruenta* ; *Bloody Sweat*.

It is well known that discharges of blood from wounds, abrasions, and ulcers of the skin, especially in connection with menstruation, are by no means uncommon ; indeed, innumerable examples are to be found scattered through the medical literature of this and other countries ; but cases in which the sanguineous flow is altogether independent of any pre-existing lesion are exceedingly rare.

The main features of this curious and interesting complaint will probably be best impressed upon the mind by giving a few illustrative cases :—

CASE 20.—On the 5th of May 1866, on the recommendation of Dr. J. Lindsay Mason of Ayr, I was consulted with regard to a young lady, who, although hardly 15 years of age, had the appearance of being a couple of years older. I am indebted to Dr. Mason's description for many of the details which follow.

Menstruation became fully established at the early age of 8, and continued regularly until she was 11 years old, when it ceased entirely. At the age of 13 it reappeared, and continued normally until the middle of February 1865, when it again became irregular, and about this time Mr. Haldan of Ayr was requested to see her on account of "a large abrasion of the cuticle in the middle of the right cheek, suppurating in the centre, and inclining to bleed towards the circumference. This sore was exceedingly obstinate, refusing to yield to the constitutional and local treatment resorted to."

In the summer of this year she went to England, the sore being unhealed, and the menstruation very irregular. The cutaneous manifestations seem to have subsided in the month of October, coincident with which she began to menstruate regularly each month, the discharge on each occasion being profuse, and lasting about six days.

<sup>1</sup> Revised article in "A Treatise on Diseases of the Skin," 2nd edition, London, 1894.

In March 1866, Dr. Mason was requested to see her again, owing to a fresh outbreak of the eruption; and from about this time onwards, until I saw her in May, the menstruation was very irregular,—that is to say, she menstruated for one day every week for four weeks, the discharge being however very scanty, after which a fortnight elapsed before the next menstrual flow, and then the weekly discharges re-appeared again for other four weeks, and so on.

The only parts of the skin implicated from first to last were the face, arms, front of the chest, and legs. When I saw her I was struck by the arrangement of the round patches of eruption which were left in the sites of the hæmorrhagic attacks. One was on the centre of the brow, another on the chin, and one on each cheek. On the front of each arm, also, there were four in a row,—two on each upper arm and two on each forearm. When the chest was the seat of the eruption, the patches also occurred in a row down the front of the sternum. It will thus be observed that the symmetry of the patches was wonderfully perfect, pointing very conclusively to the constitutional origin of the complaint. The patches were oval or rounded,—some of them resembled erythema; while others were covered with crusts, due to the desiccation of serum, blood, or pus, and resembled eczema.

One of the most marked peculiarities of the hæmorrhage was the suddenness of its invasion. She sometimes exclaimed, “Oh, I feel another place on my face again!” and *immediately* the hæmorrhage set in. One day when Dr. Mason was dressing a patch of eruption on her face, she suddenly called out, “Oh, I feel a place on my arm!” He at once turned up her sleeve, and sure enough a large oval patch, fully 2 in. in length and 1 in. in breadth, was detected on her left forearm.

Each outbreak was accompanied by a burning pain, and for some time after the development of a patch, especially on the arms, the part was very sore, but never itchy. An oval or round red ring, varying from the size of a shilling to that of a crown, formed almost instantaneously, and the redness quickly spread inwards over the enclosed skin. As soon as seen, the patches appeared as if the cuticle had melted away, and the surface was quite wet. Sometimes the exudation was like water at first, and changed into blood; at other times, and especially on the face, the patches were at once covered with a complete dew of blood. The hæmorrhage did not, however, consist merely of a dew of blood,—that was only at the outset; it was actual bleeding as from a cut, the blood sometimes streaming down the face or other part attacked.

Sometimes, instead of blood, there was only a serous discharge, ending in suppuration. Those patches which bled most healed soonest, but before they healed (which generally took place within five or six



days) both suppuration and hæmorrhage often occurred at the same place. In exceptional instances the parts did not heal for four weeks. This was especially observed on the chin. No trace of the previous eruption was left after it healed up, except on the right cheek, where suppuration was free and prolonged, and where a trifling cicatrix was left, although not sufficient to cause deformity.

At first she had not the slightest warning that an outbreak was at hand, but at the later periods of her illness Dr. Mason "observed her lean her head upon her hands, and wear an almost anxious look; and on questioning her she said she felt rather giddy, and in a quarter of an hour or less another place would break out."

There was rarely more than one attack each day, although sometimes the hæmorrhage occurred from two separate portions of skin simultaneously. It is very curious to note, too, that the outbreak *generally* occurred at the same hour each day, namely, at about 11 A.M., but it did not seem to be under the influence of mental or bodily excitement, or to be induced by taking food or stimulants. Occasionally it occurred in the afternoon, and sometimes a day passed without an attack.

While still suffering from this complaint, she had a severe attack of whooping cough, which seemed greatly to aggravate the patches on her face, causing them to bleed freely. At this time also she had frequent and copious epistaxis, generally after a fit of coughing or retching, and this somewhat relieved the parts attacked.

This young lady was rather an excitable person, but her general health was good, and the bloody discharge was not sufficiently profuse to weaken her.

She had been seen by a number of medical men, some of whom, at all events, regarded the ailment as being dependent upon debility, as was evidenced by the courses of cod-liver oil, steel, etc., which were administered; but Dr. Mason and I regarded it as one of vicarious menstruation.

The treatment which was accordingly adopted was the maintenance of free action of the bowels with aloes and iron pills, especially when there was any menstrual flow, at which time she sat for about an hour in a hot mustard hip-bath, and had a few leeches applied to the insides of the thighs.

Locally, when the hæmorrhages occurred, the parts were bathed with cold water, and afterwards dusted with powder of oxide of zinc. Dr. Mason also combined with this treatment the administration of Fowler's solution, which she had been getting before I saw her, and which at all events did no harm; although I was rather opposed to it on theoretical grounds, as being apt to produce congestion of the skin, and to favour the outbreaks.

Within a fortnight of the commencement of the treatment directed against the disorder of menstruation, there was manifest improvement, and Dr. Mason reported that by the beginning of June the cutaneous manifestations had quite disappeared, and no traces of them were left except the slight scar previously referred to, and slight redness of the previously affected parts if she got overheated or excited. About this time, however, she had on one occasion a slight discharge of blood from the eyes. Her menstruation, although considerably improved, was not well established.

On 27th October 1866, Dr. Mason reported that she remained "quite free from her old and troublesome complaint," and that her menstruation was "pretty regular," though "not quite up to the mark"; and on 19th May 1867 he reported, "The young lady is now quite well, and has been so since I wrote you last."

CASE 21.<sup>1</sup>—A girl, *æt.* 14; was admitted to the Western Infirmary on 20th January 1888, and gave the following history of her illness:—

For eight and a half months she had suffered from the development of patches on the skin, which suddenly became painful, and shortly afterwards the seats, at first of a serous, and afterwards of a sanguineous, discharge. From first to last the parts affected were the prominences of both cheeks, the suprascapular regions, and the front of both thighs and legs, showing, in a very striking manner, the symmetrical distribution of the disease. About eleven months before admission she had an attack of epistaxis, which lasted for about a day, and was pretty severe, and three weeks later it recurred in a less degree. Exactly one month from the date of the last epistaxis, the first spot appeared on the skin of the left cheek. Its development was as follows:—A small round area of the skin on the left cheek became suddenly the seat of an aching pain, which lasted from about a quarter to half an hour, without any further change. At the expiration of this time there began to exude from the patch a sticky transparent material like gum or white of egg. The commencement of this exudation seemed to be coincident with, or to determine, the cessation of the pain. This discharge continued, for half to one and a half hour, of a clear colour, but at the end of that time it became at first mixed with, and apparently ultimately replaced by, a sanguineous discharge or exudation. After the discharge became red it never continued longer than an hour,—usually less. The hæmorrhage varied greatly in amount, there being sometimes only a few drops, and at others a small stream of pure blood flowed. From time to time, without any constant interval, fresh areas, which passed through the same changes, occurred, but two days seldom elapsed without some spot making its appearance. She noticed, however, that every third

<sup>1</sup> Reported by Wm. Macleennan, M.B..

week there was a great exacerbation of her symptoms, which lasted for about seven days, during which time the hæmorrhagic areas were much more numerous. She has not yet begun to menstruate, but seems in every other respect to be a robust and healthy girl.

The treatment, which was as follows, was begun on the 28th January, at which time the hæmorrhages from the skin were at their worst. Her bowels were carefully regulated with 5 grs. pil. aloes et ferri; and 1 gr. pil. potassii permanganatis, thrice daily, was ordered to be given for two days prior to the time that menstruation seemed likely.

*2nd February.*—Three days ago she menstruated for the first time, and the discharge, though scanty, was otherwise normal. It continued for four days. To-day two spots have appeared on the face and one over the left acromion process, but the hæmorrhage was very slight.

*16th February.*—One spot has again appeared on the face.

*3rd March.*—For the past two days the permanganate pills have been given, and to-day menstruation has again appeared, without the slightest recurrence of the hæmorrhage from the skin. As she left the Infirmary soon after this, the permanency of the relief remains in doubt, although it is obvious that a continuance of the same line of treatment would prevent a relapse.

CASE 22.<sup>1</sup>—B. S., a girl, æt. 12; was admitted to Ward 4 of the Western Infirmary on 17th January 1893, with an eruption of eighteen months' duration.

The family history is unimportant. Her general health has always been good, but for occasional headaches. No cause can be assigned for the outbreak which, when it first appeared, attacked the lip and brow, and afterwards involved the face, arms, body, and legs in succession. It affects only a limited area at one time, and leaves one part to reappear at another. Varying intervals elapse between successive crops, sometimes one or two days, sometimes as much as a fortnight; but the old patches have never been entirely healed before new ones come out. During the month before admission she had two or three bleedings from the right ear and from the nose, by which she lost a good deal of blood. These attacks lasted about a quarter of an hour. She has never menstruated. The urine and temperature are normal.

Shortly before the appearance of each crop of eruption, the patient feels rather sick. Then a red and circumscribed erythematous patch, of varying diameter, but usually round, comes out, oftenest upon the face or arms, but not infrequently upon other parts of the body. After an interval of from a few minutes to half an hour the central portion of this patch becomes more intensely red, and forms an oblong or more rounded figure, from  $\frac{1}{2}$  in. to 1 in. in length, and  $\frac{1}{4}$  in. broad. Over

<sup>1</sup> Reported by Wm. R. Jack, M.D.

this area the corium appears to undergo rapid solution, and a watery serum exudes, which occasionally is distinctly blood-stained. At or near the margin, either slightly before or simultaneous with the development of the central spot, a ring of deeper colour forms, but does not go on to exudation. This ring is about  $\frac{1}{4}$  in. broad. Each patch of eruption remains out from half an hour to an hour and a half, and then gradually fades. The serous or sanguineous exudation dries up, and forms a palish or a dark brown scab, according as blood was absent or present. In a week or so this scab falls off, leaving behind a pink cicatricial tissue, which is for some time tender on pressure.

Each crop of eruption is usually composed of several patches, which appear at irregular intervals. Sometimes two or more come out together, sometimes they follow each other at intervals of about half an hour, or a longer time may intervene. The whole crop has usually appeared within a few hours. The separate patches appear very rapidly. The eruption is never itchy, and only occasionally painful. Where the exudation is only serous, it bleeds very readily if touched.

On admission, patches of the cicatricial tissue referred to were found on the forehead and legs; and within a few days new patches appeared on the cheeks and on the dorsum of the right arm and hand, where their long diameter corresponded to the length of the limb.

The treatment consisted of hot hip-baths with mustard, and the administration of pil. aloes et ferri. Towards the end of February Carlsbad salts were added. The patient, however, improved but slightly, fresh crops of eruption appearing every few days. Her general health remained excellent.

On 1st March she was put upon ergot of rye. The attacks of eruption then rapidly diminished in number, and she was taken away by her mother upon 11th April 1893. At that time she had had but one attack in five weeks, a fortnight before she left.

Erasmus Wilson, in his valuable work,<sup>1</sup> has reported two cases of vicarious menstruation very similar to my own, one being that of "a young lady in whom a discharge of this nature took place every fortnight from four circular spots, each about the size of a half-crown, and situated symmetrically on the face; one being on each cheek, one on the forehead, and one on the chin."

He also quoted a very extraordinary case of a young woman of 18, who "suffered a loss of blood from 'her ears, a little after at the points of her fingers, and then at her toes; presently after at the umbilicus and corner of the eye; several times by sweat; and at length it burst out from the middle of her breast; afterwards in the foot, where the saphena is pricked in bleeding; then

<sup>1</sup> "On Diseases of the Skin," London, sixth edition, p. 821.



at both palms and back of the hands.' Two days after, it flowed from her chin, and in the night-time from the tip of her tongue; and all this in a fortnight's time. Whenever it flowed from her 'breast or other parts like sweat, there was no vestige of an orifice to be seen.'"

CASE 23.—M. Brierre de Boismont, in his work on menstruation,<sup>1</sup> quotes the following case from the "Médecine clinique" of Pinel:—"Miss A. had been subject to attacks of hysteria from the age of 11, which were followed by vomiting of blood. She menstruated at 14; her health was re-established, and the catamenia continued to flow regularly for several months. A sudden fright suppressed the menses, and again hysteria came on. Vicarious menstruation now occurred. The legs swelled and were covered with vesicles, and during six months blood was regularly discharged from them. The left arm swelled, and the legs recovered, and for a year there was a regular sanguineous discharge from the arm. A third deviation occurred from the left hand, which had been slightly wounded. The 'menses' flowed from this opening for six months. In the fourth year two wounds were formed on the face from an attack of erysipelas; one upon the side of the nose, the other on the upper eyelid. For two years the periodic discharge took place from these openings, and it no longer occurred from the thumb. The abdomen in its turn was attacked with erysipelas, and for five months regularly there was a discharge from the navel at each menstrual period. For four months the discharge proceeded from the inner ankle of the left foot; for two months from the left ear; for three from the left nipple. When the discharge did not flow from any one part, bleedings at the nose and vomitings of blood, preceded by convulsions, pains in the head, and giddiness, took place. After remaining some time at the Salpêtrière, the health of this young female improved, and regular menstruation was established."

In the *Lancet* for 2nd March 1861, a very curious case, which came under his care, is related by Dr. T. K. Chambers, of which the following are the most salient points:—

CASE 24.—The patient was a young woman, the subject of suppressed menstruation, who "constantly suffered from want of appetite, cough, pains in the chest, and a feeling of debility," although her appearance was that of robust health, and who, at the age of 23, became the subject of a cutaneous eruption on the face, the development of which is thus described:—"She feels first a peculiar soreness and tenderness of an isolated spot, which enables her to predict that in the course of

<sup>1</sup> "De la Menstruation considérée dans les Rapports Physiologiques et Pathologiques," Paris, 1842.

a few hours an eruption is going to commence. The first appearance of this is an erythematous blush, sometimes slightly raised above the surrounding surface, but not so much as in erysipelas. After an uncertain time, seldom more than a few hours, there may be detected a scattered crop of fine vesicles, like sudamina, mixed with a fine serous dew, uncovered by any pellicle. This never lasts long enough to form colourless drops, for it quickly becomes blood stained, and then little points of blood are seen oozing out, sometimes so slowly as to dry and form a scab, sometimes collecting into great thick gouts, and trickling in a ghastly way down her face." If left alone to dry into a scab, the bleeding "stops in a week or ten days, usually, however, to be succeeded, before it is quite recovered, by a similar eruption in another place. Sometimes, at irregular periods, there was an interval of a week or a fortnight; sometimes the cutaneous phenomena were replaced by bleeding from the nose, but never by hæmorrhage from either lungs or bowels. These symptoms continued nine months, and were relieved by anticipating the eruption of blood with leeches applied to the spot where it was expected. The discharge became serous, then was like little blisters, and finally ceased, when her health was re-established by the sea air of Margate."

In September 1860—that is, four years from the commencement of the first attack—she was admitted into St. Mary's Hospital, with similar symptoms; but on this occasion the face was not attacked. "When she lies down much in the day," wrote Dr. Chambers, "that, indeed, is almost always the locality where it has appeared; but when she is about, the legs and thighs have exhibited like appearances; both fore-arms too, and once the chest, were attacked." The fluid exuded "contained blood discs . . . much granular matter, dark, fatty-looking specks, and scales of epidermis." Blood drawn from a prick in the finger looked perfectly natural. On two occasions she threw up from the stomach about half a pint of dark brownish purple sanguineous fluid; and occasionally her pocket-handkerchief was stained with blood, reported to have come from the nose.

"She was bled three times," wrote Dr. Chambers, "and after each bleeding successively there was a decided improvement in the quantity and quality of the eruption. Four times there were leeches applied to the groins, but I could not trace any benefit to that. But when leeches were applied to the spot affected, they certainly arrested the hæmorrhage at that spot, and diminished its future violence elsewhere. She had leeches applied in this way, to one place after another, thirteen times during the month of December, making seventy leeches in all, in addition to 24 oz. of blood taken by venesection. Yet, though blood-letting has been thus freely employed in the way most calculated

to cause debility, namely, in small and repeated quantities, she has gained power and vigour, got less hysterical, and improved in every way, at the same time that her cutaneous hæmorrhage has been gradually diminishing. For a few days, while convalescing, she had a spontaneous diarrhœa."

Contemporaneously with bloodletting, alocs and oleum sabinæ, in various doses, were employed, and consequent upon that treatment, about five weeks before she left the hospital, the catamenia occurred once and flowed for five days. No immediate lessening of the cutaneous hæmorrhage followed the establishment of the uterine function; it had begun to improve before, and continued to improve after it, so that by the beginning of February 1861 it had ceased altogether.<sup>1</sup>

Chambers cites two cases from the *Arch. gén. de méd.*, Paris, 1829, tome xix. pp. 112, 113,—one of a young lady, who, after ten years' suppression, menstruated for three years through a vesicular eruption in one finger; and the other of a prostitute, in whom the discharge occurred through spots of the size of a five-franc piece, which appeared from time to time, one after another, on the breast, in the axilla, on the back, the buttocks, and the epigastrium. "The description of this case," wrote Dr. Chambers, "accords closely with that of our patient, especially in the eruption being less periodical and more continuous than happens in most vicarious menstruations. The uterus also was healthy, for she became pregnant and bore a child."

Chambers also quotes from Hensinger<sup>2</sup> the case of a woman who had diseased ovaries and recto-vesico-vaginal fistulæ, in whom, although the catamenia sometimes appeared at the proper place, they were generally arrested there, and appeared in a variety of parts of the skin, but especially on the face. She had suffered five years, was very hysterical, and had been in several hospitals.

Besides the above, cases have been related by A. Finol,<sup>3</sup>

<sup>1</sup> In a letter dated 29th July 1867, Dr. Chambers wrote me as follows: "Shortly before my illness in the spring of '64, I saw the young woman. . . . She had experienced occasional attacks of hæmorrhage from the skin during the interval since I last saw her, but could always keep them off if she could get some leeches at the right time. She came then to ask for some leeches, for which I gave her a sort of general order. She distinctly said that she always found herself stronger after artificial loss of blood. I observed in her one thing which I did not, I think, notice in the lecture, namely, a peculiar livid injection of the conjunctivæ before the skin became affected."

<sup>2</sup> *Schmidt's Jahrb.*, Leipzig, 1836.

<sup>3</sup> "Observation d'une dégénération telle que le Sang transsudoit par la peau"; Sédillot, *Rec. périod. Soc. de méd. de Paris*, tome xix. p. 71.

Schilling,<sup>1</sup> Lenhossek,<sup>2</sup> Voigtel,<sup>3</sup> Van Swieten,<sup>4</sup> and others, but space will not permit of my alluding to them further.

It must not be supposed that all cases of hæmidrosis are connected with derangements of menstruation. That such a conclusion is erroneous is proved by the fact that it has been observed in adult males and in infants. Thus Hebra<sup>5</sup> tells us "of a young man, strong and well-nourished, who was attacked repeatedly by hæmorrhage from the surface of the lower limbs. This generally occurred during the night, so that he first became aware that the bleeding had taken place by finding the sheets stained with spots of blood when he awoke." "I once, however," continued Hebra, "saw blood flow from the uninjured back of the hand of this patient while he was sitting near me at table. The blood formed a jet, which would about correspond in size to the duct of a sweat-gland. This jet had also a somewhat spiral form, and rose about one inch above the surface of the skin."

Beneventus, too, has recorded the case of a man who discharged blood once a month from his right side.<sup>6</sup> And M. du Gard<sup>7</sup> has described a case, quoted by Erasmus Wilson,<sup>8</sup> of a child 3 months old, that was "taken with a bleeding at the nose and ears, and in the hinder part of the head, which lasted for three days, and afterwards the nose and ears ceased bleeding, but still blood-like sweat came from the head. Three days before the death of the child, which happened the sixth day after it began to bleed, the blood came very violently from its head, and streamed out to some distance. It also bled on the shoulders and at the waist; it bled also for three days at the toes, at the bend of its arms, at the point of the fingers, and at the fingers' ends."

From a study of the recorded cases of ephidrosis cruenta—a title, by the way, which was given to the disease by Mason Good, but which is singularly inappropriate, for the discharge is

<sup>1</sup> "De Sudore Sanguineo, post Graves Convulsivos et Spasmodicos Affectus erumpente, Feliciter tandem Sublato"; *Acta Acad. Nat. Curios.*, vol. iii. p. 425.

<sup>2</sup> "Physiologia Medicinalis," vol. iii. p. 352.

<sup>3</sup> Stark's "General Pathology," p. 1131.

<sup>4</sup> "Commentaries on Boerhaave," sec. 1286.

<sup>5</sup> "On Diseases of the Skin," translated and edited by C. Hilton Fagge, vol. i. p. 94, *New Syd. Soc. Translation*, London, 1866.

<sup>6</sup> "Van Swieten's Commentary on Boerhaave," vol. xiii. sec. 1286.

<sup>7</sup> "Medical Essays," abridged from the *Phil. Trans.*, London, vol. i. p. 52.

<sup>8</sup> "On Diseases of the Skin," London, sixth edition, p. 820.



a hæmorrhage, and not a perspiration tinged with blood; as some have supposed—the following conclusions may be drawn :—

1. Discharges of blood from the skin, apart from wounds, abrasions, ulcers, and the like, are exceedingly rare.

2. In some cases such discharges are preceded by the development of oval or round patches of erythematous inflammation; in others, by the eruption of crops of vesicles, such as I once saw in an instance of milky (white fibro-serous) discharge from the leg; while in a third class of cases the hæmorrhage comes from the follicles without any intervening eruption.

3. The disease occurs most frequently in females, and in connection with amenorrhœa or defective menstruation, being in fact a species of vicarious menstruation.

4. That such is its invariable pathology, however, is disproved by the fact that it has been known to occur in infants and in adult males.

5. That the treatment by means of nourishing diet, stimulants, and tonics, on the supposition that the hæmorrhage is due to debility and deterioration of the blood, is unsuitable in the majority of cases.

6. That, on the other hand, an opposite line of treatment—and especially the abstraction of blood, local or general, or both—is much more likely to prove serviceable, and to stop the discharge.

7. That when the disease occurs in the female, in connection with anomalies of menstruation, these must be corrected by the usual means.

Referring to the bloody sweat of Christ, the celebrated Dr. Mead made the following observations :<sup>1</sup>—“ St. Luke relates of Christ Himself that, when He was in an agony by the fervency of His prayers, His sweat was like drops of blood falling down on the ground. This passage is generally understood as if the Saviour of mankind had sweated real blood, but the text does not say so much. The sweat was only *ὥσεί θρόμβοι αἵματος*, as it were, or like drops of blood; that is, the drops of sweat were so large, thick, and viscid, that they trickled to the ground like drops of blood. Thus were the words understood by Justin Martyr, Theophylactus, and Euthymius.”

<sup>1</sup> “ Medical Works,” London, 1762, p. 630.



DISEASES OF THE NERVOUS SYSTEM.



## I.

### ON THE USE OF ANTIPYRIN IN LARGE DOSES IN EPILEPSY AND IN CHOREA.

AMONGST the coal-tar derivatives recently introduced into practice, none can surpass antipyrin in value, whether regard be had to the certainty of its action, when appropriately administered, or to the manifold conditions with which it is capable of grappling.

Personally, I have had hardly any experience of its deleterious effects—at least of a serious nature—when employed with due precautions. Once or twice it made the patients “feel very ill,” and, when pushed, vomiting was occasionally induced. In certain cases, too, a rash appeared upon the skin, generally of a measly or erythematous character, but this rapidly disappeared when the use of the drug was suspended, and was never a source of any uneasiness. In this opinion I am confirmed by the report of the Therapeutic Committee of the British Medical Association, appointed to make “an inquiry regarding the importance of the ill effects following the use of antipyrin, antifebrin, and phenacetin.”<sup>1</sup> Out of 189 observers who report on antipyrin, no fewer than 138, or 73 per cent., have never observed any ill effects at all worth mentioning. Considering how large is the experience of the action of this drug represented in these reports, this large proportion of observers who have no ill effects to record is very remarkable. Almost more than any other fact could do, it seems to testify to the comparative harmlessness of this drug when properly administered. . . . It is clear, then, if one may be allowed to judge from these reports, that ill effects following the use of antipyrin are not only relatively but absolutely infrequent in their occurrence. One observer expresses his opinion that they are “rarer than the idiosyncrasies of the iodides or quinine”;

<sup>1</sup> *Brit. Med. Journ.*, London, 13th Jan. 1894, p. 85.

and certainly, as far as the above reports go, this would appear to be the case.

But it must be admitted that this is contrary to the opinion of many, and I can only suppose that the drug has been impure, or the initial dose too large, or they have been unfortunate in giving it to patients with whom it disagreed, in virtue of a peculiar idiosyncrasy, which it shares with many other valuable medicines. But if we are to fight shy of everything which disagrees with isolated individuals, we would not only have to deny ourselves the use of many valuable remedies, but of almost every species of food and drink.

The following cases are good illustrations of the benefits which may be derived from the use of antipyrin in large doses, and the comparative safety with which it may be given, although such cases must be carefully watched, and the initial dose should not exceed 10 or at most 15 grs. :—

CASE 25.<sup>1</sup>—J. M., æt. 9 years; was admitted to Ward 2 of the Western Infirmary on 12th December 1889, suffering from fits of two and a half years' duration. His father stated that he had previously been perfectly healthy. In both father and grandfather there was a history of so-called "hysterical fits,"—in the father, between the ages of 2 and 4, and in the grandfather, between those of 45 and 57. An aunt had a "stroke" twenty years ago, from which she recovered, and is still alive. Six weeks before the first fit the boy had a fall, bruising his head just above the right ear, but there was apparently no injury to the bone. He recovered from this in about three days, and remained well, until the first fit occurred, for which the parents can think of no other cause but the fall. At the beginning of the illness he had only about four to six fits daily, but they gradually increased in number until he had as many as thirty or forty. At the same time he complained of gradually increasing weakness in the right arm, but this after a time disappeared, when the left became similarly affected. Three months afterwards the fits entirely ceased, after the application of blisters to the head. An interval of fifteen months ensued, during which there were none, and throughout this time the general health remained perfectly good. About seven months before admission, with no apparent cause, they began again, at first only one occurring in twenty-four hours, but gradually they increased until they amounted to forty or fifty, the largest number in one day having been fifty-seven. There was no improvement until a few days before admission, during which time he had only twelve daily. The fits occur in sleep as well as while he is

<sup>1</sup> Cases reported by Wm. R. Jack, M.D.

awake. They are sometimes preceded by pain in the left elbow, sometimes by headache, now frontal, and now situated on the side of the head over the right ear. The headache sometimes only occurs immediately before the fits, and is sometimes of longer duration. Occasionally three or more fits occur together with very little interval, but there appears to be no status epilepticus. Drowsiness, lasting for a few minutes only, often succeeds the convulsion. The right side was at first the more severely affected, but now is considerably less so than the left. The patient is perfectly intelligent. Numerous fits were seen, both by the house physician and by the nurses, and all presented similar characters, their duration being from one and a half to two minutes. In all, with the commencement of the tonic spasm the arms were thrown over to the right side, and either both rigidly extended, or the right flexed at the elbow and the left extended. The thumbs were bent into the palms; at the same time the head was violently twisted to the right, so as to look over the shoulder, and the eyes were rolled upward and to the right. Clonic convulsions followed, especially violent upon the left side, except in the face, where they occurred upon the right, and involved chiefly the zygomatici and the lower half of the orbicularis palpebrarum. The mouth was kept half open, and there was no foaming: the tongue was not bitten. Nearly all the fits were preceded by the epileptic cry. As consciousness returned the patient sometimes burst into tears. There was occasionally incontinence of urine during the fits.

On examination all the organs were found normal. The gait was awkward and unsteady. Shortly after a fit there was slight exaggeration of the left patellar tendon reflex, and an approach to ankle-clonus on the right side. There was a continuous dilatation of both pupils, which responded normally to light. Examined again on 22nd December, an hour and a half after a fit, there seemed to be slight paresis of both upper and lower limbs, the left side being apparently a little weaker than the right. The dynamometer in the left hand registered 32, in the right 30 kilos.

The treatment, which was commenced on 20th December, consisted of rest in bed, regulation of the bowels, and the exhibition of antipyrin, commencing with 5 grs. thrice daily, and increasing by 1 gr. in every dose each day. On 9th January 1890, 25 grs. thrice daily were reached, and this dose was continued till 16th January, when it was diminished to 20 grs. thrice daily. From the date of entrance till 26th December the average number of fits daily was 16·5; from then till 30th December, 13·2. On 31st December and 1st January there were eleven fits; on 2nd and 3rd January, ten fits; and on 4th January, three. They then ceased till 28th January, when the dose of antipyrin had been lowered for twelve days. There was then one slight fit, and the dose was again



increased to 25 grs. thrice daily. From that time there were no more, and the patient was dismissed on 1st March quite well. He continued the antipyrin at home, and a letter from his father, dated 12th March, stated that there had, up till then, been no recurrence.

CASE 26.—L. E., æt. 13, schoolboy; was admitted to the Western Infirmary on 10th October 1892, complaining of twitching of the right hand and foot, of four months' duration. The family history has no special interest, except that his mother is subject to rheumatism. He has never had scarlet fever or rheumatism, and there is no history of fright. In March 1891 he had his first attack of twitching. It was confined to the right side, and affected both hand and foot, which could not be kept still, nor could anything be held in the hand. Swallowing was not interfered with, but speech was slightly affected. He attended the Infirmary dispensary, and by the month of July had quite recovered. He remained well until June of the present year, when the twitching gradually returned, being confined, as before, to the right side. The attack is more severe than its predecessor. He has attended the dispensary for some time, but without material improvement. On examination, typical choreic movements are seen in the right arm and leg, which cannot be held in any one position even for a moment. Anything placed upon the palm is at once jerked off. He spills at least part of any water he attempts to swallow, and so on. There is an occasional tendency to stammering. The right eyelid is affected, and the right pupil is much larger than the left. The pulse varies between 110 and 120. There is a faint apical systolic murmur. The temperature and the urine are normal. The case was treated by antipyrin. On 11th October he received 15 grs. in three doses, and as the drug agreed perfectly it was rapidly pushed. On the 13th he had 30 grs., and on the 15th 45 grs., on the 17th 60 grs., and so on, until on 14th November he was taking 50 grs. thrice daily. He was about a fortnight under treatment before the symptoms began to abate, when he was getting 30 grs. thrice daily, but from that time improvement was continuous, and he left the Infirmary perfectly well on 25th November, the dose of antipyrin having been maintained until his dismissal at 30 grs. thrice daily. On leaving he was instructed very gradually to diminish the dose, and up till the date of writing (6th December) he has remained in perfect health.

CASE 27.—M. W., female, æt. 12; was readmitted to Ward 7 on 17th December 1892, suffering from a violent attack of chorea, of a month's duration. The family history is unimportant. About twenty-one months ago she had an attack of rheumatic fever, which confined her to bed for five or six weeks. She had not long recovered, when her

mother noticed that she could not maintain any one position for any length of time. She was always fidgeting, and "strange movements were observed." There was no history of fright. She was treated by a medical man, and improved; but the treatment was changed, and the movements returned. After about four months she began to lose strength, and could not do anything requiring exertion. She attended the dispensary for some time, and was finally sent into the Infirmary by Dr. Dickson on 21st December 1891. At that time the attack was a slight one. The movements consisted of a constant jerking of the head from side to side, and "fidgeting" with the hands. The left hand was most affected, but even there the movements were slight. The tongue was unaffected. All motion ceased during sleep. The treatment consisted of rest in bed, regulation of the bowels, and the administration of extract of malt with cod-liver oil. She was dismissed well on 26th January 1892. She was readmitted on 17th December 1892 with a violent attack of a month's duration. On this occasion the movements were so violent that she could not walk without falling, nor sit without being dashed about so as to injure herself. On admission she had several bruises upon her head and body, and it was necessary to tie her down in bed. A special nurse was required to watch her at night. All four limbs were attacked. She was treated on this occasion by rapidly increasing doses of antipyrin. On 17th December she took in all 12 grs.; on 18th December, 10 grs. thrice daily; 19th December, 15 grs.; 21st December, 20 grs.; 25th December, 25 grs.; 6th January 1893, 30 grs.; 12th January, 35 grs.; 14th January, 40 grs.; 16th January, 45 grs. The doses were not increased beyond this point, as the drug then produced sickness. Since 35 grs. were given it had caused slight headache. Improvement was very rapid. The special nurse was not required after forty-eight hours. By 7th January the patient was so far recovered as to be able to sit by the fire. Movements still persisted, but they became very slight, and were confined to the right hand and leg. After 16th January the drug was twice stopped for a day owing to sickness, and on 23rd January the dose was reduced to 40 grs. thrice daily, and Easton's syrup was given. The dose of antipyrin was then gradually further reduced. Slight movement of the right hand persisted for some time, but this also finally disappeared. She was dismissed quite well on 7th March 1893.

CASE 28.—A girl, *æt.* 13, came under my care on 8th November 1897, suffering from chorea of four weeks' duration. Her father, mother, four sisters, and two brothers, are alive and well, although one of them had rheumatism after scarlet fever.

When about 6 years of age she suffered greatly from "growing pains," but, apart from this, she was quite healthy until three years ago,

when she had a typical attack of chorea chiefly affecting the right side, and which lasted for nine months. Six months thereafter she had a similar attack, which continued for five months. The present one commenced four weeks before I saw her, when her teacher noticed that she was unable to form her words distinctly. Two or three days thereafter the choreic movements of the muscles set in. It was a very severe attack, and affected both sides of the body equally. She was constantly on the move, rolling from one side of the bed to the other, and swinging her arms and legs about to such an extent that the bedclothes were being constantly thrown upon the floor. These irregular movements always became much worse when she was looked at or spoken to, but they ceased when she was asleep. She complained greatly of headache, was very slow in answering questions, although she understood perfectly what was said to her, and she had great difficulty in articulation. This attack was so severe that she was quite unable to walk or to stand, and she had to be fed.

All the internal organs, including the heart, were healthy.

No improvement took place for a week, when she had no treatment with the exception of rest in bed. Antipyrin was then commenced, and increased as follows:—

Nov. 15.	Antipyrin,	10 grs.	at night.
„ 16.	„	„	morning and evening.
„ 17.	„	„	three times in the day.
„ 18.	„	„	four „ „
„ 19.	„	„	five „ „
„ 20.	„	20 grs.	three „ „
„ 21.	„	omitted on account of sickness.	
„ 22.	„	recommenced at same dose.	
Dec. 8.	„	to be increased 1 gr. in each dose.	
„ 10.	„	69 grs. in the day.	
„ 15.	„	84 grs.	„
„ 21.	„	102 grs.	„

It is unnecessary to give a series of reports as to the progress, it being sufficient to say that whenever the larger doses were commenced there was a steady and progressive improvement, and by the 1st of January 1898 she was practically well.

Did space permit, many other similar cases, in which equally good results were obtained, might be quoted, but the above may be taken as fair samples of the whole; and I may sum up my experience in the following aphorisms:—

Antipyrin is not the dangerous drug which some observers have led us to suppose.

It may be given with safety in large doses, even in the case of children, in most cases, although the initial dose must be small; and it must be slowly and cautiously increased, the patient always being carefully supervised.

In large doses it often yields surprisingly good results, and in chorea, with the exception of some of the other coal-tar derivatives, it is the only medicine from which cures may confidently be anticipated.

While lauding the virtues of antipyrin in the treatment of the neuroses alluded to, it must not be supposed that I desire to underrate the value of other coal-tar derivatives, although I have not had so much experience of them, and the following case, in which exalgin was used, may be cited in illustration:—

CASE 29.—E. M., a girl, æt. 15; was admitted to Ward 7 for the second time on 20th December 1892, suffering from chorea.

Her previous admission was due to the same disease, which she then had for the first time. The attack was much more severe than the present one, and was accompanied by some paresis of the left arm. It affected the left side as it does now. She was treated by arsenic, and after a stay of nearly three months in the Infirmary (3rd August to 26th October 1886) was dismissed well.

Her general health has remained good since then, and she was free from choreic symptoms until recently. Four weeks before admission she got a fright, due to a fire, and a week or more thereafter choreic movements began in the left leg and arm. Throughout the attack they have not been very severe. They are worst when she is at rest, and are relieved by work or other occupation. Her bowels are very costive. She menstruated a week before admission, but not for six weeks previous to that.

Both her parents are alive and well, though the mother is delicate. They had seven children, of whom she is the sole survivor. She has no information as to the causes of death of the others.

On examination, the cardiac apex is found to be slightly displaced upwards. There is no murmur. The other organs are healthy, and the temperature and urine are normal.

The patient was treated by exalgin, which she received in increasing doses as follows:—

Dec.	21.	Exalgin, 2 grs., t.i.d.
„	28.	Regulate bowels with Carlsbad salts.
Jan.	3.	Exalgin, 4 grs., t.i.d.
„	9.	„ 5 grs., „

Jan. 12. Exalgin, 6 grs., t.i.d.

„ 14. „ 8 grs., „

„ 16. „ 10 grs., „

„ 18. „ 12 grs., „

At this date the choreic movements had entirely ceased. She complained of headache, with giddiness and faintness. The exalgin was therefore stopped until 25th January, when 10 grs. were given thrice daily, and from that time the doses were gradually decreased. She was dismissed perfectly well on the 30th January.

## II.

### INTRACRANIAL TUMOURS.

THE symptoms of intracranial tumours vary much in character and in degree, for many reasons, such as their nature, size, rapidity of growth, and, above all, their seat. In many cases they give rise to no symptoms at all, being only discovered on post-mortem examination, while in others these are of such an indeterminate character as to render the diagnosis a source of the greatest difficulty. But though differing exceedingly in their clinical characters, there are yet certain outstanding symptoms which, when present, leave no reasonable doubt as to their presence.

The most frequent and most prominent of these is *headache*, which is usually persistent, but with paroxysmal exacerbations, which may be truly agonising in character. It is usually aggravated by violent exertion or excitement, often by exposure to light or sound. It may affect the whole or any part of the head, is often one-sided (hemicrania), and usually remains in the same locality throughout; but the seat of the pain is no necessary criterion of the situation of the tumour, although, when markedly concentrated in the occipital region, it excites a strong suspicion of cerebellar disease. Gentle tapping of the skull, in the case of superficial tumours, generally produces tenderness over the seat of the disease, not elsewhere, and is thus sometimes an aid to localisation.

*Vertigo* is seldom altogether absent throughout, and is frequently the first symptom. It is generally most troublesome during the exacerbations of pain and on assuming the erect posture, while it is often absent when the patient is at rest, and, where it is of ocular origin, may be relieved by shutting the eyes. As Reynolds has remarked, the patient does not generally complain of surrounding objects rotating, but feels as if rolling over, or swimming along in space. Vertigo is specially severe and



frequent in cases of disease of the cerebellum and middle cerebellar peduncle.

*Sympathetic vomiting* is often a prominent feature, particularly in the early stages, and when the headache is severe. It is generally unaccompanied by nausea or other symptoms of stomach disorder, has no special reference, as a rule, to the taking of food, and is frequently relieved by maintaining the recumbent posture. It is usually associated with constipation.

*Optic neuritis* is one of the most constant accompaniments of intracranial tumours. Statistics as to its frequency are not entirely in harmony, but Gowers' statement that neuritis is present in at least four-fifths of the cases, may be regarded as very near the mark. Hence it is evident that its presence is of great significance in the diagnosis of intracranial tumour. It may be one of the earliest symptoms, and may first arouse suspicion of organic intracranial disease, but it should always be remembered that it may not appear until late in the course of the development of the tumour. In a case of suspected tumour, therefore, the eyes should be examined from time to time, and the condition of the discs carefully watched. Another important fact to bear in mind is that there may be considerable optic neuritis in both eyes without there being any lowering of the visual acuity, or at least such as is appreciable to the patient. Hence, in all suspicious cases, the eyes should be carefully examined as a matter of routine, even although the patient assures us that his vision is good. The optic neuritis in these cases is nearly always bilateral, although a very few cases have been reported where, with unilateral neuritis, an intracranial tumour was afterwards found.

It has been attempted to draw a distinction between cases where the changes in the optic discs were due to mechanical compression, caused by an accumulation of fluid in the sheath, the so-called "choked disc," and those in which the inflammatory changes had travelled down the optic nerve to the disc, "descending neuritis." It is now, however, generally admitted that this distinction cannot be made clinically, nor is it of any diagnostic importance.

The optic neuritis varies greatly in intensity in different cases, and in the same case will present different degrees of intensity at different times. In a case of optic neuritis of considerable intensity, such as we mostly meet with at some

stage of an intracranial tumour, the chief appearances are as follows:—

The disc is greyish red in colour, often assuming a peculiar blue-grey tint. It is swollen, but the degree of swelling varies considerably. It can be roughly measured by observing the difference in the strength of lens which is necessary to focus accurately the surface of the swollen disc and the surrounding retina, and allowing 1 mm. for every 3 dioptries of difference. The edges of the disc are obscured and cannot be seen. The vessels are seen to curve over the swollen disc, and may be here and there completely concealed by the swollen nerve tissue. The arteries are frequently narrowed and the veins distended and tortuous; a condition which may persist for a considerable distance from the disc. Hæmorrhages are frequent, and are commonly situated on the edge rather than at the surface of the swollen disc. If the neuritis is very intense, the swollen disc may occupy an area very much larger than normal, and hence the nutrition of the surrounding retina for a considerable distance may be greatly disturbed, as evidenced frequently by the presence of hæmorrhages and white spots. When the neuritis subsides, and the disc shrinks to its normal dimensions, the presence of these white spots, especially if near the macular region, may puzzle the inexperienced ophthalmoscopist, from their resemblance in character and position to the spots of albuminuric retinitis.

The rapidity with which the neuritis is developed varies very considerably. It may reach a high intensity in the course of two or three weeks, or even after several months may only be very moderate. Rapid development, as a rule, is associated with great intensity of the neuritis. The first sign of the subsidence of the neuritis is a diminution of vascularity, a still further contraction of the arteries, and later of the veins also. The edges of the disc become gradually visible. The disc resumes a normal appearance only when the neuritis has been slight; when it has been of considerable intensity the disc finally appears abnormally pale, in a condition of consecutive or post-papillitic atrophy. That the atrophy has followed an acute neuritis, is frequently evidenced by the filled-in appearance of the disc, by the narrowness of the vessels, often accompanied by white lines along their walls, by the edges being somewhat irregular, and the choroid and retina in the neighbourhood showing signs of previous

disturbance, either by alterations in the pigment or by the presence of white spots.

Although the discovery of double optic neuritis is strongly in favour of the presence of an intracranial tumour when the other symptoms point distinctly in that direction, yet, when the other symptoms are obscure, too much importance must not be attached to its presence. It occurs in many other conditions,—as in cerebral meningitis, cerebral abscess, syphilis, lead poisoning, anæmia, and in disturbances of nutrition of very various kinds.

While, then, the presence of double optic neuritis is a valuable confirmatory sign of the presence of an intracranial growth, it affords us no information as to the position, size, or character of the tumour. It is met with in tumours occupying all positions within the cranium; it is seen with tumours not as large as a walnut, and is sometimes absent although they are very large; and it occurs with every variety of intracranial growth.

Finally, it should be borne in mind that an intracranial growth exercising pressure on the chiasma, or on the optic nerves in front of the chiasma, may cause a simple atrophy without any antecedent neuritis.

*Paralytic phenomena* are common, but generally not widespread, although hemiplegia is far from rare. In that case the paralysis usually sets in slowly, implicates a limited area at first (*e.g.* the face or hand), and gradually extends, while increasing in intensity. This is very suspicious, and the suspicion is almost converted into a certainty, if accompanied by double optic neuritis. Much more frequently there is paralysis of one or more of the cranial nerves, which is almost always peripheral (the paralysed muscles not responding to faradisation), because the tumour often springs from the skull or the membranes, implicating the brain secondarily, or it may spread from the brain to the nerves emerging from it. Consequently, when hemiplegia and paralysis of a cerebral nerve occur together, it is generally observed that, while the former is on the opposite side from, the latter is on the same side as, the lesion (crossed paralysis), unless there is more than one tumour.

*Convulsive seizures* are frequent, and may be the first and only symptom for a time. In that case we may suspect the possible presence of a tumour, if we are able to exclude the other causes of convulsions. If to these symptoms headache

and vomiting are added, and, above all, double optic neuritis, there can be very little doubt. Convulsions are most common when the cerebral cortex is involved. The duration of the aura and of the fit is apt to be more prolonged than when due to other conditions, and the latter is apt to be partial, being often limited to one side, or implicating one limb or a hand (Jacksonian epilepsy). In some cases the convulsive seizures may have a local beginning, and, gradually spreading, become general. This local commencement is peculiarly significant, and points to the seat of tumour. A local sensory aura, preceding the convulsive seizure, has the same localising significance as the motor commencement, pointing to the locality in which the chief irritation exists. In some cases convulsive seizures are replaced by tonic contractions of the muscles or clonic spasms.

In children there is occasionally an alteration in the shape of the head, but rarely in adults.

*Mental disturbances.*—Amongst the terminal symptoms of most forms of intracranial tumour are stupor and coma. Sometimes, however, at a comparatively early stage in the development of the disease, psychical symptoms appear, the most frequent being general blunting of the mental powers, weakening of the memory, with loss of emotional control.

*Prognosis and treatment.*—In arriving at an opinion as to the probable upshot of a case of intracranial tumour, we must of course take into consideration the character and severity of the symptoms, and, up to a certain point, the duration of the disease when the patient comes under observation, for, of course, the longer it has been present the greater is the likelihood of secondary changes having been induced in the surrounding brain substance. But, after all, the main points to be determined are (1) the situation of the tumour, and (2) its nature.

As regards the former, it stands to reason that the prognosis is more grave when the symptoms point to the involvement of important or vital parts. But if the symptoms enable us accurately to localise the tumour, and to satisfy ourselves that it is accessible, there is a reasonable hope that a cure may result from operative interference,—an illustration of which is given further on (Case 39).

As regards the nature of the tumour, we can only hope for a cure if it is syphilitic or tubercular, and, in rare cases, if it is aneurysmal. It is unnecessary to say anything with regard to

the diagnosis and treatment of *syphilitic deposits*, as these are fully considered in the chapter on Syphilitic Diseases of the Nervous System. A *tubercular tumour* may be suspected if we take into account the following circumstances. It is most commonly met with in children between the third and seventh years, and in young adults. There is often a tubercular family history, and other organs and tissues may be involved, *e.g.*, in the adult we are almost certain to find a deposit of tubercle in the lungs, although it need not necessarily give rise to symptoms during life. The symptoms of tumour, too, are often associated with those of tubercular meningitis. There is usually some elevation of temperature, although pyrexia is generally a less pronounced feature when the brain is involved than when other organs are attacked. We can thus sometimes be pretty sure of our diagnosis, and we are occasionally successful in causing the symptoms to disappear by pushing cod-liver oil, phosphorus, and other anti-strumous measures, while palliating any prominent symptoms which may be present, *e.g.* headache, vomiting, pyrexia (see Case 35). *Aneurysm* is not always so large as to give rise to the typical symptoms of tumour, and we then have great difficulty in recognising its nature. We endeavour to exclude other kinds of tumour, while we ascertain whether any of the known causes of aneurysm are present,—syphilis, valvular disease, injury, etc. We look for symptoms of tumour in the neighbourhood of vessels specially liable to be involved, *e.g.* the left middle cerebral artery or the large vessels at the base of the brain. Headache is a very constant symptom, is often intense and accompanied by throbbing in the head, while unilateral paralysis of cranial nerves may be expected to appear early in the attack. Exceptionally, a murmur may be heard by the patient, or even by the physician, on auscultation. If we suspect aneurysm, it must be treated by means of absolute rest of body and mind, iodide of potassium in large doses, and the other remedies applicable to aneurysm in general, while cases of cure have been recorded as the result of ligature of the common carotid artery.

If the tumour is beyond the reach of operative interference, and is neither syphilitic, tubercular, nor aneurysmal, we most generally confine ourselves to palliative treatment, in the hope, which is occasionally realised, that the symptoms may subside, and a certain measure of health be restored.



The cases which follow illustrate some of the remarks which have been made.

CASE 30.—A case of supposed disease of the pons Varolii.

CASE 34.—Tumour of the medulla oblongata.

CASE 35.—Case of cerebellar disease, probably tubercular.

CASE 36.—Disease of the middle lobe of the cerebellum.

CASE 37.—Malignant tumour at the base of the brain, with secondary nodules in the liver.

CASE 38.—Tubercular tumour of the cerebellum with meningitis and tubercular deposits in other organs.

CASE 39.—Cerebral tumour removed by operation.

#### A CASE OF SUPPOSED DISEASE OF THE PONS VAROLII.

CASE 30.—A female, æt. 23, a spinner by occupation ; was admitted into the Western Infirmary on 7th August 1875, with the following history :—

Her father died at the age of 46, of typhus fever ; her mother at 48, of heart disease. She has one sister and two brothers alive and well, and another brother who has been ill for some years, although she cannot tell the nature of his complaint.

Prior to the commencement of her present illness she seems always to have enjoyed good health, although her bowels have been habitually costive, and her menstruation, which made its appearance at the age of 17½ years, was never very regular, six or eight weeks sometimes intervening between the periods. About two years ago she began to complain of headache, which was limited to the left side of the head, and which has continued ever since. The pain is spoken of as being of a “beating” character. It is more or less constantly present, but becomes aggravated at times, especially in the forenoon. It is particularly severe in the left supra-orbital region. Within the last six weeks the headache has been accompanied by giddiness, especially when the pain is severe ; so that her gait at these times is unsteady, and she feels as if she is going to fall.

About seven weeks prior to admission she began to complain of a “prickling” soreness along the left margin of the tongue, which was increased by eating, and she had great difficulty in pronouncing words. There was also impairment of the sense of taste to a certain extent ; for although she could distinguish between sweet things and bitter, etc., food tasted differently from what it had previously done, though in what the difference consisted she could not explain. In a day or two after the tongue became sore ; she says she felt a few hard lumps along its left edge, each being about the size of a pea, and very painful to the



touch. They disappeared in about three days. As the symptoms referable to the tongue began to abate, the vision of the left eye became somewhat impaired, and she often fancied that she saw things on the floor which were not present. At first the eyeball was bloodshot to a marked degree, but in a few days the congestion passed off and did not return. At the same time as the eye became affected, *i.e.* five weeks before admission, the left cheek felt stiff, swollen, and painful, and gradually became paralysed. She observed that she could not close the left eye, and that her mouth was drawn to the right side. The sense of hearing was not affected. About two weeks after this she experienced a feeling of "numbness and coldness" in the left shoulder, which generally spread down the limb, and was followed by weakness; so that she was unable to hold anything in the hand. Immediately afterwards the left leg became similarly affected, and subsequently the right also. The paralysis of the lower extremities, too, was only partial, as she could walk, though her gait was unsteady, and there was a tendency to dragging of the feet. Finally, five days prior to admission, whilst resting her head upon her right hand, a sharp pain was suddenly experienced in her right shoulder, and spread down the arm to the fingers, causing it to drop on the table. The pain passed off in about a minute, but was followed by a feeling of coldness and numbness, and by partial loss of power. She has also had "prickling" pains in the arm at intervals, but no involuntary twitchings. About four months before she was admitted she received a violent blow upon the head, over the left eyebrow, which caused her to have a strange sensation in the left side of the upper part of the head for eight or nine days; but from this she recovered perfectly.

On admission her general health was good; the affection of the tongue and left eye had disappeared, but the paralysis of the left side of the face and the semiparalytic condition of the arms and legs continued. The sensation, as to touch and temperature, was unimpaired; but in the left leg the sense of pain was below par. The tongue was protruded in the middle line, but the uvula was distinctly carried to the right side. The left cheek was slightly swollen and without expression, the mouth was carried to the right side in laughing, and she was quite unable to whistle or to close her left eye.

Here, then, is a strange and unusual array of threatening and apparently unassociated symptoms, and in connection with them we have to consider (1) the seat of the disease, and (2) the nature of the disease.

1. *The seat of the disease.*—A prominent feature in the case was paralysis of the left side of the face; indeed, the seventh nerve was completely paralysed; and, as we so often see in cases of this kind, the paralysed muscles did not respond to faradisa-

tion. Now, paralysis of the seventh nerve may be due to either central or peripheral causes; and in the latter case, if not traumatic, it is generally due either to exposure to cold or to disease of the middle ear. The following case is a good illustration, although a rare one, of paralysis of the portio dura nerve, in connection with disease of the middle ear.

CASE 31.—A woman, æt. 37, of average general health, consulted me on the 8th April 1863. She informed me that about a month previously (10th March) she went to witness the review on Glasgow Green, in honour of the marriage of the Prince of Wales. She was stooping down to raise her child from the ground, when a cannon was fired about a hundred yards (she said) from her, the right ear being directed towards it. Immediately deafness supervened on that side, and she was sensible of tinnitus, which she described as being like “the rush of distant water,” and which still continued when I saw her. About two weeks after the accident she observed that when she spoke her mouth was drawn to the left side, and she was unable to close the right eye.

On examination, I found that the paralysis of the right side of the face was complete, and that the tongue, when protruded, was drawn apparently towards the right side. The hearing on the left side was perfect; on the right the watch was inaudible, either when placed on the temple or pressed against the ear. On inspecting the right ear, the meatus was quite natural, but the drum was slightly milky-looking, and rather more concave than natural, although the triangular bright spot passing downwards and forwards from the point of the handle of the malleus was well defined. On the posterior segment of the drum, parallel to the handle of the malleus, commencing on a level with the middle of it, and extending a little way below it, a white ragged line was observed which had all the appearance of a cicatrix. The Eustachian tube was nearly impervious. The patient had experienced no pain in the ear at all, nor was the system apparently affected in any way. The prognosis noted down at the time was—favourable as regards the paralysis; as regards the deafness, slight improvement to be expected; as regards complete recovery of the hearing, unfavourable; and as regards the tinnitus, doubtful. She was ordered to apply two leeches to the orifice of the meatus, and to take three calomel and opium pills daily, each pill containing 2 grs. of calomel and  $\frac{1}{3}$  gr. of opium.

On the 13th April the following was the report:—Leeches bled well; gums unaffected; paralysis as before; watch heard on pressing it firmly against the ear, and distinctly audible when placed on the temple, though not so much so as on the left. The following ointment was now

rubbed on the right cheek in front of the ear, morning and evening :—Croton oil,  $\frac{1}{2}$  drn.; antimonial ointment, 1 oz.

On the 20th the watch was still more distinctly audible on the temple, and was heard at the distance of 1 in. from the ear; the paralysis was slightly improved, especially as regards the closing of the eye. The ointment was omitted. A fly-blister,  $2\frac{1}{2}$  in. square, was applied immediately in front of the ear.

On the 29th the following report was made :—Watch nearly as audible on the right as on the left temple, and heard at a distance of 3 in. from the ear; paralysis decidedly less in every respect; tinnitus not quite so loud; drum less opaque. Gums never decidedly affected, though the right cheek was indented by the teeth and slightly ulcerated. The blister was repeated, and a tablespoonful of the following mixture was taken twice daily :—Iodide of potassium,  $\frac{1}{2}$  oz.; infusion of quassia, 12 oz. The pills were discontinued.

On the 6th May, a month from the date of her first visit, the paralysis was almost gone; the watch was heard 6 in. from the ear; the tinnitus remained as on the 29th April; and the drum, though less opaque than at the first visit, was still muddy.

She was recommended to continue the iodide of potassium mixture, and to return, which however she never did, so that I am unfortunately unacquainted with the ultimate issue of the case. I had intended to have endeavoured to overcome the obstruction of the Eustachian tube by means of the catheter, with the hope of thereby improving still further the hearing power and of diminishing the tinnitus.

This case is worthy of being recorded, because, as far as my experience and reading go, I have never met with a similar one. That cases of deafness suddenly produced by loud noises are of frequent occurrence no one can deny, and we are all conversant with the supervention of paralysis in consequence of inflammation of the tympanic cavity; but I know of no other case in which there was a combination of these two sets of symptoms. It will be useful, therefore, to inquire into the nature of the case. There can be no doubt that the shock produced by the report of the cannon caused an immediate injury to the ear; and one can have little hesitation, judging from what we know to be the usual cause of deafness from concussion, in affirming that some injury was done to the nervous apparatus in the internal ear, but unfortunately sufficient opportunity has not yet been afforded for ascertaining the exact form of injury which is produced in these cases. It is to be hoped, however, that, as the diseases of the ear come to be more carefully

studied by the profession, this point may be satisfactorily elucidated.

But, in addition to the injury inflicted upon the internal ear, I have no doubt that a rupture of the drum took place at the moment of the discharge of the gun, for this is by no means a rare result of loud noises; and, besides, it would satisfactorily account for the very distinct cicatrix which was noted at the first visit of the patient on the posterior segment of the drum, and likewise for the subsequent symptoms. I have thus endeavoured to account for the sudden tinnitus and loss of hearing, and for the cicatricial appearance of the drum, but how can the paralysis be accounted for? The explanation I give of it is this:—The injury done to the drum and other structures in the middle ear excited a low form of inflammation of the mucous membrane of the cavity of the tympanum, unaccompanied, as is so often the case, by any appreciable pain. Hence the opaque appearance of the drum when the patient first came under observation, and the partial obstruction of the tympanic orifice of the Eustachian tube. As this inflammatory condition proceeded, it extended to the aqueduct of Fallopius, as we observe in many uncomplicated cases of tympanitis; and the portio dura nerve in this canal becoming implicated, paralysis of the right side of the face supervened.

The object of the treatment was to allay the inflammatory condition, and the result was as satisfactory as could have been expected under the circumstances.

In the case under consideration, there is reason to believe that the paralysis of the portio dura was due to cerebral disease,—first, on account of the absence of the usual causes of peripheral paralysis; and, secondly, on account of the accompanying paralysis of the limbs. Now, cerebral disease associated with well-marked paralysis of the portio dura is usually seated in the pons Varolii. The following case, reported by Dr. James Russell,<sup>1</sup> and which was marked by many of the symptoms present in our patient, illustrates this point:—

CASE 32.—A lady, æt. 42, whom Dr. Russell saw on 22nd October 1868, along with Mr. Hickenbotham, became (in May 1867) suddenly insensible, and had convulsive movements of the left side. The left side of the face also was “drawn.” She perfectly regained consciousness, but remained with partial paralysis of the left limbs and of all

<sup>1</sup> *Brit. Med. Journ.*, London, Oct. 24 and Dec. 12, 1868.



the muscles supplied by the right portio dura, the tongue deviating to the left side. Three or four days after her seizure the right eye became much congested and swollen, and continued so for three days, there being neither prominence of the globe nor lachrymation, nor apparently any alteration of the pupil. These attacks of congestion of the right eye frequently recurred, and once the left eye was similarly affected. In the first week of December Mr. Hickenbotham was suddenly summoned to her, and found her speechless, but quite conscious, earnestly endeavouring to form words. A few hours afterwards she was quite unconscious, and died within twenty-four hours of her seizure.

At the autopsy, a narrow, irregular split was found to exist at the upper part of the right side of the pons, about one-third of an inch in length. Close to it, possibly communicating with it, were two small passages, about half a line wide and twice that length, burrowing across the septum of the pons. There was a faint yellow staining in the surrounding tissue. The tissue of the pons was firm, and there did not appear any wasting of the right half. The medulla oblongata and the crura were healthy. The root of the seventh nerve was not lessened in bulk. The right cerebral ventricle contained about  $1\frac{1}{2}$  oz. of loose fresh coagulum. The outer half of the corpus striatum and thalamus, and the central tissue enclosing the ventricle on the other side, were broken down, converting the ventricle into a large irregular cavity. The septum lucidum was preserved, and the left ventricle contained only some clear colourless fluid. The arteries at the base of the brain were unusually stiff and patulous; both the trunks and the primary branches were spotted with thickened patches, very visible in their interior aspect. In all other respects the brain and its membranes were healthy.

In this instance the symptoms present in my patient were observed, with the exception of the affection of the tongue and of the paralysis of the extremities of *both* sides.<sup>1</sup> How, then, can we account for the affection of the tongue? Let me first of all mention a case of facial paralysis, accompanied by implication of the tongue, reported by Dr. Bazire.<sup>2</sup>

CASE 33.—W. M., æt. 48, an instrument manufacturer, who works habitually in a cold, damp place, applied as an out-patient at the hospital on 25th March 1867. He stated that seventeen days previously he had noticed that the left side of his face was completely paralysed, and added that for two or three days before this he had a sensation, confined to the left side of his tongue, as if the organ had been scalded. Since the paralysis had set in, he had constantly had a metallic taste on that

<sup>1</sup> Only one side of the body was paralysed in Mr. Hickenbotham's case.

<sup>2</sup> *Brit. Med. Journ.*, London, Sept. 21, 1867, p. 249.

side. The common tactile sensibility of the parts was not affected. He had been hard of hearing of both ears for many years; but since his face had been paralysed he had been struck with the fact that he could hear better with his left ear than with the right, and decidedly better than before. When he was first seen by Dr. Bazire, he presented the well-known appearances of facial palsy,—the smooth forehead, and blank aspect of one-half of the face; inability to close the eye on the affected side, to whistle, to frown on that side, etc. The left half of the tongue and of the oral cavity were not drier than the right, but the patient distinctly stated that he had a metallic taste in the left half of his tongue. His uvula was pendulous, but in a straight line, not inclined to either side; the left half of the velum palati was apparently depressed, and lower than the right half. Hearing was decidedly better on the left (that of the paralysis) than on the right side.

The perversion of taste present in this case, as well as in my own, is due, according to Claude Bernard, either to “a modification of the circulation of the part, or to deficient erection of the papillæ of the tongue preventing proper contact between them and the sapid substances.”<sup>1</sup> This is the result of paralysis of the chorda tympani nerve,—a branch of the facial, which joins the lingual branch of the fifth nerve,—as is proved by the slightly metallic taste first noticed by Duchenne to result from faradisation of the membrane of the tympanum, which at the same time stimulates the chorda tympani.

When the disease is seated in the upper half of the lateral region of the pons, the facial paralysis and the paralysis of the limbs are situated on the opposite side of the body from the lesion; but when the lower half is involved, the paralysis of the face is on the same, that of the limbs on the opposite side from the lesion; for in that case the facial is implicated after its decussation, while the motor channels for the limbs decussate below the pons.

But how can we account for the paralysis of the limbs on both sides of the body? In this way, no doubt. The paralysis of the left side of the face, the right arm, and the right leg, may be due to implication of the left side of the pons, while the extension of the disease beyond the middle line would account for the paralysis on the left side of the body.

2. *The nature of the disease.*—I think we may reasonably conclude that the symptoms were due either to hæmorrhage, softening, or tumour. In all probability they were not due to

<sup>1</sup> See Dr. Bazire's paper, before mentioned.



*hæmorrhage*. The history is quite different from that which we would expect in such cases, *e.g.* pain in the head of two years' duration is never observed. Again, this condition is most frequently noticed in persons who are getting up in years, and in whom there is more or less evidence of degeneration of the coats of the superficial vessels, pointing to the probability of a similar degeneration of the cerebral vessels, such as usually precedes rupture, and often there is evidence of cirrhotic disease of the kidneys; while my patient is young, the superficial vessels are natural, and the kidneys healthy.

Softening of the brain is usually dependent upon obstruction of a blood vessel, either by an embolus or a thrombus. For similar reasons to those mentioned with regard to hæmorrhage, we may discard the notion that softening from thrombus has produced the symptoms. Nor is it probable that embolism is at the root of the matter, for there is an absence of the usual history and concomitants of such a condition; so that, by a process of exclusion, it is reasonable to suppose that the symptoms are due to the presence of a small tumour, and if so, what is the probable nature of the tumour?

(*a*) It may have been *syphilitic*; but then we should expect to have a history of syphilis, and to find other manifestations of that disease,—such as deep ulceration of one tonsil, nodes on the superficial bones, a tubercular eruption of the skin, or the like. We should also expect the pain in the head to be nocturnal in character. In connection with syphilis, too, the sixth and the third nerves are specially liable to be involved. If there was still any doubt, the result of an antisiphilitic treatment might decide the point.

So much for acquired syphilis; but the tumour may be the result of a taint, hereditarily transmitted. In that case, however, we would probably have had a history of miscarriages in the mother, and of manifestations of syphilis in the infantile period. We would almost certainly have found other evidences of hereditary syphilis, in addition to the cerebral symptoms,—such as pallor of the skin, cicatrices upon the face and at the angles of the mouth, stunted growth, prominence of the brow, corneitis, sunken nose, notched teeth, etc.

(*b*) It may have been *tubercular*; but tubercular tumours of the brain most frequently occur between the ages of 3 and 7 years, and there is often a hereditary tendency to tubercular disease.

Other manifestations of this diathesis are likewise frequently present, as in the following case reported by Sir Thomas Watson:<sup>1</sup>—"I attended," says he, "with Dr. Latham, a youth whose symptoms led us to believe that he had tubercular disease of the peritoneum. We thought it probable also, although there were no *physical signs* of pulmonary disease, that his lungs contained crude tubercles. After some time he went down to the coast, and was there attacked with a fit of general convulsions. Up to that period he had shown no symptoms whatever indicative of organic disease within the head. On being apprised of this seizure, we expressed, in a letter to the physician then attending him, that it had resulted from the presence of scrofulous tumours in the patient's brain. The convulsions returned a few days afterwards with great violence, and the boy died. It was as we had conjectured. The peritoneum was found studded with innumerable miliary tubercles. There were a few crude tubercles, of some size, around the root of the lungs, and two large masses of the same sort in the brain."

In connection with this point, it may be well to bear in mind the rule, to which there are few exceptions, that after the age of puberty there is more or less evidence of tubercular disease in the lungs when other organs are attacked. Lastly, were the tumour tubercular, we should expect to find elevation of temperature, although not to so marked an extent as when other organs are involved.

(c) The tumour may have been *cancerous*; but cancerous disease generally occurs in persons over 40 years of age, and is accompanied by a cachectic appearance, which was not present in our patient. In some cases, too, there is a hereditary tendency to cancer, or (exceptionally) cancer is detected elsewhere.

If tumour there was, then it is probable that it was neither syphilitic, tubercular, nor cancerous. What then? All that we can say is, that in young adults, if we are able to exclude tubercle and syphilis, a tumour of the brain is generally benignant in character (glioma, etc.).

In the treatment of this case, therefore, no attempt was made to cause the tumour to disappear. All we could do was to treat symptoms and complications. We gave her a course of strychnia, and, as the bowels were constipated, we combined it with sulphate of magnesia.

<sup>1</sup> "Lectures on the Principles and Practice of Physic," 5th edition, vol. i. p. 380.

The paralysed side of the face was also galvanised every second day, and a series of blisters applied alternately in front and behind the ear. Soon after the commencement of the treatment the pain in the head and the paralysis of the extremities disappeared, while the paralysis of the side of the face was considerably modified. At the time of her dismissal she was in the most perfect health, the only symptom remaining being partial paralysis of the portio dura nerve.<sup>1</sup>

Finally, it must be admitted that the rapid disappearance of the paralytic symptoms suggests the possibility of the symptoms having been dependent upon an inflammatory lesion at the base of the brain.

### TUMOUR OF THE MEDULLA OBLONGATA.

CASE 34.—On 4th June 1881, a student of divinity, æt. 37, was admitted into the side room of Ward 2, with a very unusual train of symptoms, the cause of which it will now be my endeavour to elucidate. One morning about three years ago, on wakening, he observed that he had a left internal squint; slight at first, it gradually became more pronounced, so that, at a distance of 15 ft., images appeared 1 yard apart; but in about four or five months it in great measure disappeared, unless after a bad night's rest. Shortly after this he had for a time some confusion of ideas, and very slight pain in the back of the head and upper part of the spine, which was followed in a few months by drowsiness, to such an extent that he was constantly falling asleep; this drowsiness gradually deepened into a sort of stupor, from which he was aroused with some difficulty. This symptom, too, about the same time to a great extent passed off. About the beginning of the present year he suffered from loss of appetite, indigestion, and occasional vomiting, which confined him to bed for a few weeks, on leaving which he observed for the first time that he had some difficulty in walking. Two months ago he "sprained his left leg," when he took to bed again for a couple of weeks, chiefly, as he says, "on account of the shock

<sup>1</sup> Dr. Thomas Reid examined the eyes of this patient with the ophthalmoscope, and with the following result:—There was hypermetropia ( $\frac{1}{2}$ ) in both, and in both thinning of the choroid. The vision of the left was reduced one-half, but there was no special defect in any region of the field of vision. The papillæ in both were oval-shaped, and the vessels were accompanied in both by white streaks. The upper and inner aspect of the left disc was slightly cupped, and occupied by a network of cicatricial tissue, continuous with the white streaks accompanying the vessels. Dr. Reid thought that the symmetrical character of the abnormal shape of the discs pointed to congenital or local rather than intracranial causes. The intra-ocular changes, viewed by themselves, might be accounted for by the hypermetropia; but, in the light of the other symptoms, it was also possible that they were due to some general cause, syphilitic or other.

which it gave him." Since then the difficulty in walking has been more marked, not on account of any loss of power in his limbs, he thinks, as they seem to him to be "as strong as ever they were," but on account of giddiness, and an inclination to fall, sometimes backwards, sometimes forwards, but oftenest backwards. The day before he hurt his leg he had two "nervous attacks," and while in bed, on account of the injury, he had eight or ten more, all of which closely resembled, though they were more severe than, one which he had the day after his admission, of which the following is a brief outline:—

About 4.30 A.M. on the day in question, he began to suffer from hiccough and severe frontal headache, with uneasiness in the eyes and tingling in all his extremities. About 8 A.M. he began to expectorate large mouthfuls of clear, sometimes frothy, tenacious saliva. The salivation continued more or less all day, about two hand basins-ful in all being expectorated. During the attack he vomited once a small quantity of beef-tea shortly after its ingestion, the eyes watered very much, and the eyelids and conjunctivæ were congested, while the pupils, especially the right, were observed to be contracted. The skin at the commencement felt hot, but slowly cooled down. Unfortunately at this time no record of the temperature is preserved, but during his residence in hospital the temperature was sometimes above the normal, and on the night of his admission was  $101^{\circ}4$ .

Latterly he has complained of a noise like machinery between his temples, and vomiting has been a frequent symptom; this he attributes to constipation, which has troubled him all through his illness.

He is a tall, lanky, melancholy-looking man, who has rather a stupid, apathetic look, except when he speaks; but he answers questions very intelligently. He has great difficulty in walking, for the reason before mentioned, and also because the left knee is almost completely ankylosed, as the result of an inflammatory affection which set in when he was about 9 years old, and continued for about half a dozen years.

The disease from which he suffers evidently involves quite a number of cerebral nerves: the sixth nerve on each side is paralysed, as he is unable to turn the eyes outwards; and the third nerve, particularly the fibres supplying the internal recti, is likewise involved, as he is unable to turn the eyes inwards; indeed, the range of movement of the eyeballs is exceedingly limited, and what little power of movement remains is chiefly in a vertical direction. An ophthalmoscopic examination was made by Dr. Thomas Reid, who sent the following report:—

"*Left eye.*—Optic nerve slightly oval, major axis vertical, rather pink in colour, and not quite translucent; vessels rather diminished in size, especially veins, with some little irregularity in the



distribution of the pigment. *Right eye.*—Slightly myopic, with a little tendency to congestion." It will thus be seen that there was no evidence of optic neuritis.

Further, as first noticed by the patient two or three months before admission, there is very decided loss of power on the right side of the face,—so decided, that one might almost have taken it for a case of Bell's paralysis, such as results from exposure of the side of the face to cold; but that the paralysis of the facial nerve is due to a central lesion, is demonstrated by the fact that the muscles respond readily to both currents of electricity. There is, too, a suspicion of implication of the glosso-pharyngeal nerve, as, for the last two or three months, he has had some dysphagia, especially on swallowing solid food, while the left spinal accessory is completely paralysed, as shown by the inaction and marked atrophy of the trapezius and sterno-mastoid muscles of the left side, especially the former. The urine, it should be added, though rather pale, and containing a few phosphates, is otherwise normal, and contains not a trace of sugar.

*The seat of the disease.*—A consideration of the symptoms just enumerated leads to the inference that the disease is situated at the base of the brain, and in the vicinity of the pons Varolii or medulla oblongata.

*The nature of the disease.*—With regard to this point there is more difficulty in arriving at a conclusion, further than that the disease is a tumour of some kind. There are certain tumours, however, which in all probability we may exclude. Thus it is probably not syphilitic, for although implication of cerebral nerves, and particularly of the third and sixth, are common in this condition, there is no nocturnal pain, nor is there any history of syphilis, and a most careful examination fails to detect any trace of other manifestations such as are commonly met with in that disease. Nor is it likely to be cancerous, as we find neither hereditary tendency to it, nor any evidence of cancer elsewhere, although the latter point is of no great value as a negative feature, seeing that cancer of the brain is generally solitary. There is, too, a total absence of the cachexia so frequently present in such cases, while the age of the patient is below that at which it is most commonly met with. This is well shown by the statistics of Walshe, who found that of fifty-six cases of cancer of the brain, twenty-six occurred between the

ages of 40 and 60. It might, however, be of a tubercular nature, for although we cannot trace any hereditary tendency to that diathesis, there has been some elevation of temperature throughout the disease, such as we usually find in connection with tuberculosis, and there is reason to suspect that the ankylosis of the knee resulted from strumous disease in early life. If not tubercular, it is probable that we have to deal with a tumour of the nature of a glioma or sarcoma.

If the diagnosis is correct, little can be hoped for in the way of treatment, and we have therefore to content ourselves with

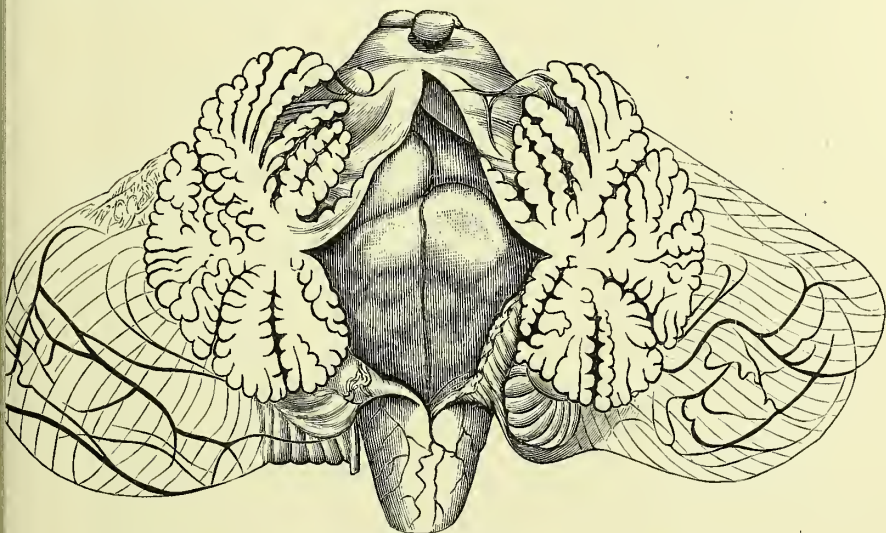


FIG. 7.—Tumour of the medulla oblongata, seen from above, projecting into the floor of the fourth ventricle.

palliative measures, one of which only is worthy of mention, namely, the subcutaneous injection of  $\frac{1}{100}$  gr. of sulphate of atropia daily, which has, in great measure, arrested the profuse salivation.

[*Sequel of the case.*—This patient went rapidly down-hill, and died on the 17th June, a week after the above remarks were penned.

The post-mortem examination was made by Dr. Joseph Coats, who reported as follows:—"Leave was only obtained to examine the head. The body is emaciated, and there is great thickening and distension of the left knee-joint.



“*Head.*—There is considerable œdema of the soft membranes, and the ventricles are greatly distended with a clear fluid. There is no exudation at the base, and the brain substance in general is normal in appearance. In particular, there is no appearance of the nerves being involved at their points of issue from the pons or medulla. On laying open the fourth ventricle, by an incision carried through the cerebellum in the middle line, a bulky tumour is found in its floor. It occupies the greater part of the floor of the ventricle, its greatest length and greatest breadth being about an inch. Its middle is slightly below the middle of the cerebellum. The tumour is much more bulky on the right than on the left side, and the middle line is pushed considerably over to the left. On its surface the tumour is nodulated, and has a bluish colour. It feels somewhat firm to the touch, but it is not cut into at this stage.”

The preparation was hardened in alcohol, and the following is Dr. Coats’ report of the section:—“The tumour was divided from before backwards, the section being made through the pons and medulla, so as not to interfere with the appearances as presented in the fourth ventricle. To the naked eye the structure is not obviously different from that of normal nervous tissue, and in particular there is no caseous material. There is indeed no obvious demarcation between tumour and nervous structure. Under the microscope the tissue of the tumour is seen to consist of an intricate network of fine fibres with very occasional round or oval nuclei,—the structure being that of a simple glioma.”]

#### CASE OF CEREBELLAR DISEASE, PROBABLY TUBERCULAR.

CASE 35.—M. C., æt. 17; was admitted into Ward 7 of the Western Infirmary on 18th February 1895, complaining of stiffness in the legs, frequently recurring headache of two years’, and a tendency to fall backwards of about six months’ duration.

Neither the family nor the personal history have any special bearing on the case.

The illness commenced two years ago with gradually increasing stiffness, and a peculiar feeling in the frontal region, which she describes as “dizziness.” She declares that, when coming downstairs, it was difficult to avoid falling forwards. (This sensation of falling forwards was probably the result of exaggerated attempts to overcome the tendency to fall backwards.) She has also suffered from headaches, so severe at times that she was compelled to leave her work and go

home. They came on markedly after exertion, occasionally when at rest, and were generally relieved by purgatives. Early in the illness she noticed tremor of the upper extremities on exertion, so that in carrying a cup of tea she required to exert herself to overcome both the tendency to fall and the tremor. She noticed, also, some tremor of the lower extremities, but it is not marked.

The gait is peculiar. She walks in a very hesitating manner, and is inclined to fall backwards and towards the right side, saving herself by stepping back with the right foot at about every alternate step. The appearance of the whole body suggests an effort at balancing; and although it is quite obvious that the real tendency is to fall backwards, the patient says that if she attempts to hurry she feels she must fall forwards. With the feet close together, and even when allowed to stand as she likes, she at once falls backwards on closing the eyes.

*Reflexes.*—The knee-jerks are, if anything, exaggerated, and there is a slight tendency to ankle-clonus.

*The speech.*—There is an almost indefinable hesitancy in the speech, which has been noticed only since the illness began.

*The optic nerves.*—There is double optic neuritis of the lighter type. The effusion is small in amount, but unmistakable. There is no diminution of visual acuity complained of.

The only treatment adopted was absolute rest in bed, with cod-liver oil and syrup of phosphorus.

*Progress.*—By 6th March the patient was able to walk some distance without support, and with very little tendency to fall backwards.

On 12th April still further improvement was evident. The gait was rather slipshod, but almost free from inco-ordination. The neuritis was subsiding.

She was dismissed on 25th April, at her own request. Scarcely any abnormality in the gait was then to be noticed.

The treatment adopted in this case was based upon a suspicion that the disease was tubercular in its nature, and the improvement which resulted seems to be in the direction of corroborating the accuracy of this view.

#### CASE OF DISEASE OF THE MIDDLE LOBE OF THE CEREBELLUM.

CASE 36.—A. L., æt. 10; was admitted to Ward 2, Western Infirmary, on 26th September 1895, complaining of staggering gait, loss of vision, frontal headache, and persistent vomiting, these symptoms having commenced in February 1895.

Father, æt. 43, is well and in excellent health. Mother, æt. 41, has been confined to bed for many months with chronic rheumatism. Four children are alive out of a family of five. The child who is dead

succumbed to bronchitis at the age of 16 months. There is no history of miscarriages or anything pointing to syphilis.

In infancy patient was troubled with bronchitis, and at 2 years of age he had measles; otherwise he has been in good health till the onset of the present illness, which commenced with a fit of vomiting in February 1894. Since then he has had frequent attacks of vomiting, always preceded and accompanied by frontal headache and prostration. He has sometimes been free from vomiting for as long as ten days, and at times has vomited almost incessantly for twenty-four hours. A doctor, who was consulted in the month of April, said he was suffering from water in the head, and applied a blister to the nape of the neck. Five days before admission, when he was getting out of bed, his father noticed that his gait was very unsteady, and that he tended to fall to the left side. His eyes, also, at this time became affected, as he could not distinguish members of the family standing beside him. He also became dull and heavy, and inclined to sleep a great deal. Of late he has been increasing in weight, and his appetite has been excellent. His father has never noticed any discharge from his ears. He has never suffered from diarrhœa, his bowels rather tending to be costive. He has had no trouble with micturition, and sensation does not seem to have been at any time impaired.

On admission he is seen to be a well-nourished, healthy-looking boy, but there is marked anterior rickety curving of both tibiæ, and there is a scar on the front of the left forearm. There is no paresis of any part, but rather inco-ordination. He is unable to stand with his heels together, and when walking he lifts his feet rather high, and puts them down suddenly in a staggering fashion, as if he were afraid he was going to fall. Mostly he tends to fall to the left side or backwards, but when he is asked to wheel about, it is not found that he wheels uniformly to the left side. There is no inco-ordination in the movements of the upper extremities. Sensation seems to be quite normal in all respects. Superficial reflexes normal; deep reflexes normal, except the knee-jerks, which are markedly deficient, the left being almost absent. There is no difficulty in swallowing or speaking. Hearing and taste normal.

*Eyes (examined by Dr. Hinshelwood).*—"Optic neuritis in both eyes, of moderate intensity, most marked in right."

*12th November.*—"Optic neuritis which has passed the acute inflammatory stage, and is now in the stage of retrogression."

*Treatment.*—

Sept.	27.	Ordinary diet and rest in bed.
„	30.	Pot. iodidi, 2 grs., t.i.d., p.c.
Oct.	24.	„ 5 „ „
Nov.	11.	„ 10 „ „
„	25.	„ 20 „ „

*Present condition.*—11th March 1896.—Since Christmas the headache, vomiting, and giddiness have disappeared. He walks much more steadily, and has no tendency to fall either to the left side or backwards. Knee-jerks are now fairly active and equal. He can stand quite well with feet together. The condition in both eyes is that of post-papillitic atrophy. There is now nystagmus, most marked on lateral movements.

## MALIGNANT TUMOUR AT THE BASE OF THE BRAIN, WITH SECONDARY NODULES IN THE LIVER.

CASE 37.—W. S., æt. 46, by trade a ferryman; was admitted to Ward 2 on 23rd January 1893, complaining of headache of eight, and loss of sensation on the right side of the face of six, months' duration.

His father died at the age of 50, of cancer of the stomach; his mother at 46, of some form of heart disease. They had a family of three,—two brothers and a sister. The brother died in childhood; the sister is alive and well. The patient is married, and has had eight children. Of these, one died before the age of 3 months, one was still-born, and a third died, like the first, before the age of 3 months.

His past health has been excellent. Until six years ago he was employed as a dock labourer, and although much exposed, never had more than an occasional cold. He then became a ferryman, and for some time drank considerably, but he has latterly been more temperate.

In May 1892 he began to complain of pain in the right ear, unaccompanied by any discharge. For this he was treated for a time, but without effect, and in the course of a month or six weeks he became completely deaf on that side. About the same time he suffered much from headache. The pain was very severe, and made him feel as if the head would burst. It was almost continuous, but much aggravated at night. At first it was confined almost entirely to the right frontal region. Since its onset the pain has hardly ever been completely absent. Of late it has extended to the left frontal region, where, however, it is less severe; and it still preserves the nocturnal character.

In June 1892 a fulness appeared on the right side of the neck, between the angle of the jaw and the ear. Its size was variable, the swelling being now very marked, and now almost absent. It never caused any pain. Blisters, which were several times applied, reduced it only temporarily. A similar swelling, above the outer part of the right clavicle, has existed, he states, for many years. A month or so after the appearance of the fulness described, the patient began to notice a loss of sensation in the right side of the face, which was accompanied by loss of power in the muscles. The two symptoms very gradually grew worse, and it was not till three or four months later that anæsthesia

and paralysis were complete. In September 1892, the right eye became affected. It was turned inwards towards the opposite side, and about the same time his sight became a little dim.

His general health remains good, although there is slight constipation.

On examination, the whole of the right side of the face is found to be paralysed. He cannot wrinkle his forehead, nor draw up the angle of his mouth, which is pulled towards the left when he attempts to do so. Food lodges between the right cheek and the gums. Anæsthesia extends over the whole of this side of the face to the middle line. It involves the ear, and is continued on to the head for about three inches beyond the margin of the hair. The right side of the nose and the neighbouring part of the cheek are much swelled and inflamed; and the right nostril is the seat of a discharge which forms dark brown crusts about the orifice. There is complete ptosis on the right side, and internal strabismus. The eye cannot be rotated outwards, and its upward movement is slightly impaired, but all the other motions are perfect. The eyeball is much congested. The pupils are equal. Dr. Reid reports that on the right side the vitreous is muddy, the nerve pale and atrophied, and the vessels congested. There is no papillitis, and the left nerve is normal. Dr. Barr, who examined the ears, reports that the right-sided deafness is due to chronic catarrh of the middle ear, and not to involvement of the auditory nerve. There is a glandular enlargement between the angle of the jaw and the ear. The tumour of older date, above the clavicle, is a sebaceous cyst.

No history of syphilis is obtainable, but on examination of the trunk an eruption is found, which consists of spots and blotches like iodic acne, but darker in colour than usual, some of the patches being distinctly coppery. The rash was produced by iodine administered before admission.

The diagnosis arrived at in this case was that of a tumour at the base of the brain on the right side, involving the fifth and sixth nerves, the portio dura of the seventh, and the third partially, and *possibly* syphilitic, on the following grounds:—

1. The history of patient's children (two deaths at three months and one still-born, all within the last six years).
2. The number of cranial nerves involved.
3. The nocturnal character of the headache.
4. The characters of the iodic eruption.

For the first few days the patient was given the following pill:—

R Hydrarg. perchlor. . . . . grs. ii.  
 Ext. cinchonæ . . . . . ʒi.  
 Divide in pil. xxiv. *Sig.*—Two daily.

Under this treatment there was a distinct improvement in intelli-



gence, and the headache disappeared. The other symptoms remaining unaltered, daily inunction of 1 drm. of mercurial ointment was begun on 30th January. The congestion of the eyeball then diminished rapidly, as did the inflammation of the nose and the discharge therefrom. For some time the glandular swelling also diminished, but on 18th February it increased in size to a considerable extent, and the skin over it became inflamed. Up to 20th February neither paralysis nor anæsthesia had been at all affected by the treatment.

From this date onwards there was no further improvement. The glandular swelling in the neck enlarged yet more, softened in the centre, and was opened, giving vent to a considerable quantity of unhealthy pus. The incision did not heal, and there was a constant purulent discharge.

In March the right eye became the seat of an acute inflammation of the cornea and iris, which resulted in complete loss of sight. The general health, meantime, did not show much alteration, although the patient became somewhat thinner and weaker. He remained in much the same condition until the evening of 5th May at 9 p.m., when he suddenly became unconscious, passed into a state of profound coma, and died at 10.40.

*Post-mortem.*—*Head.*—The convexity of the brain presents nothing remarkable. On removing the brain, considerable adhesion to the dura is discovered. The adhesions are almost limited to the right side, being as follows:—The optic commissure is adherent in the sella turcica, and the pituitary body seems to be involved in adhesions and new formed tissue. The right temporo-sphenoidal lobe is adherent on its internal and inferior surfaces. The pons is adherent on the right side, and there is softening and some hæmorrhage visible on its surface; whilst on section a grey tumour tissue is visible, in the form of a more or less rounded nodule, three-eighths of an inch in diameter, extending into the substance of the pons for about a quarter of an inch. The left lobe of the cerebellum is also adherent, and somewhat softened on its under surface. The corresponding portions of the dura are thickened, infiltrated, and adherent to the bone, which is considerably swollen and softened, so that a needle can be pushed into it in various places, to a distance of from half an inch to three-quarters of an inch.

*Liver.*—The right lobe presents at its anterior edge, and at the extreme right, a tumour mass 2 in. in diameter at the surface of the edge, and  $1\frac{1}{2}$  in. from without inwards. It is obviously composed of a congeries of coalesced tumours, the individual diameter of which may be in general from  $\frac{1}{4}$  in. to  $\frac{3}{8}$  in. The under surface of this region shows a rounded tumour, consisting of somewhat isolated nodules, some of which extend as far as 2 in. outwards from the tumour. None of these exceeds  $\frac{3}{8}$  in. in diameter. In addition, there are visible at the



surface, at wide intervals, a few scattered tumours, mostly of small size, whilst on section there are also visible a few tumours. In the portal region of the liver there is a group of enlarged and apparently infiltrated glands.

The other organs present nothing remarkable, save that the pericardium contains 10 oz. of clear yellow fluid.

On cutting deeply into the right side of the neck, where a suppurative condition is visible, two or three glands, enlarged and infiltrated with grey tissue, are observed. There is slight enlargement of the mesenteric and inguinal glands.

Microscopic examination of the tumour in the base of the skull proved it to be carcinomatous, originating probably in the sphenoidal sinus.

#### TUBERCULAR TUMOUR OF THE CEREBELLUM, WITH MENINGITIS AND TUBERCULAR DEPOSITS IN OTHER ORGANS.

CASE 38.—W. A., æt. 24; was admitted 13th February 1896, complaining of giddiness and dimness of vision, beginning in October 1895, followed at the end of December by discoloration of the skin.

One of his brothers died, æt. 15, of some chest trouble, and a younger brother suffered from what seems to have been tabes mesenterica.

Eight years ago he had a transient attack of paraplegia of short duration, from which he made a good recovery. During the last five years he had been troubled at intervals with ulceration of the sole of the right foot.

In October 1895, he first began to be troubled with giddiness and dimness of vision, coming on particularly after he began to look steadily at any object. It occasionally improved, but latterly gradually got worse. Shortly after the onset of the giddiness and dimness of vision, he began to suffer from attacks of vomiting, most frequently in the morning, but sometimes in the evening. The attacks extended over a period of three weeks, after which they did not recur. The vomiting was unassociated with either pain or nausea.

After this he gradually became weaker, and was confined to bed, being unable to stand. He observed also that he had been becoming gradually more yellow. His bowels became very constipated, and his motions very pale. For a week before admission he suffered from headache, chiefly frontal in situation, and with nocturnal exacerbations.

On admission he was considerably emaciated, and complained greatly of weakness. On testing his lower limbs in bed there was no great loss of power, but simply a general muscular weakness, which was shared by both upper and lower limbs.

He was markedly jaundiced, with yellow skin and conjunctiva. There was well-marked bile reaction in the urine, which was yellowish green in colour, and his stools were pale.

The liver was enlarged and tender, especially in the region of the gall bladder.

The knee-jerks were almost abolished, there being only a very faint response. The cutaneous reflexes were active.

There was well-marked nystagmus, which, however, was only observable on lateral movements of the eyes, and he complained considerably of headache, always worst at night.

He became gradually weaker, and died on 25th February, eleven days after admission. About three days before his death he was semicomatose, the coma gradually deepening until it became profound, it being impossible to rouse him, and he passed his motions and urine in bed.

During the period of his stay in hospital, his evening temperature was generally about 100° F., with normal temperature in the morning.

On post-mortem examination the following changes were found :—

The base of the brain showed a very marked meningitis, which extended from the neighbourhood of the optic chiasma into the Sylvian fissures and anterior longitudinal fissure. On examination of the Sylvian fissures, tubercles of some age were discovered, as large as millet seeds, and there was considerable softening of the brain substance, and some yellow coloration. In the substance of the left lobe of the cerebellum a tubercular tumour of an oval shape, measuring 3·5 by 3 cms. was found. It readily shelled out, the tissue around being soft. A small rounded tumour, measuring 1·3 cms. in diameter, was found in the frontal lobe on the left side. Both of these had a marked greenish colour (jaundice).

There was tubercular infiltration of both lungs, especially at the apex; the condition was almost uniformly in the stage of grey granulation, no cavities being found.

In both kidneys there were a few tubercles of some size, and caseating, but no general dissemination. The prevertebral glands generally were much enlarged, and there was a great mass in the neighbourhood of the first part of the duodenum. The head of the pancreas was buried in this mass, which was also adherent to, and partly incorporated with, the common bile duct, exercising considerable pressure upon it. The gall bladder was greatly distended with an almost black viscid bile. The liver showed, as viewed from the surface, numerous pale nodules of small size, and similar nodules were

visible on the cut surface. There was a moderate amount of biliary infiltration of the organ.

The ulcers on the sole of the foot presented all the appearance of tubercular ulcers.

#### CEREBRAL TUMOUR REMOVED BY OPERATION.

CASE 39.—A. K.,<sup>1</sup> æt. 16, engineer's apprentice, was admitted to Ward 2 of the Western Infirmary on 14th August 1898, complaining of fits and of paresis of the left arm and leg. No definite neurotic tendency can be traced in the family, beyond the fact that his mother suffers frequently from headache, and that for a number of years he himself has been similarly affected, apparently as part of "bilious attacks." There is no history, nor are there evidences of syphilis or tuberculosis. There is an indefinite history of slight discharge from the ears during infancy, but all traces of this have been absent for a number of years.

About four years and a half ago, without previous warning, and while in the act of lacing his boots, his left forearm was suddenly flexed, and, uttering a cry, he fell down in a semi-insensible condition, conscious, to a certain extent, of what was going on around him, but unable to speak or move. Ever since this fit he has complained at times of slight pain, numbness and weakness in the left hand, and within the last year or so this has been more frequent and severe. The pain and its accompanying numbness are usually experienced in the left thumb and forefinger, and, only when severe, extend to the rest of the hand and forearm.

No recurrence of fits took place till a year and a half ago, when, on 10th May 1889, a second occurred. This was preceded by lateral oscillation of the head for about two hours. Pain and numbness were then complained of in the left thumb and forefinger, which gradually extended upwards through the left hand and forearm to the arm, finally affecting the left side of the face, including the left half of the tongue. He remembers uttering a cry and falling, and a quarter of an hour later he woke up, unconscious of what had happened, and complaining of headache and nausea. A third fit occurred on the following day, and fourteen days later a fourth. These all began in a similar manner, and had much the same character and duration.

Alarmed about this state of matters, he sought admission to hospital on 11th June 1889, and was under treatment by mixed bromides, 5 increased to 15 grs., t.i.d., till 3rd August 1889, when he was dismissed much improved. While under observation on this first occasion, he had only two fits. These were ushered in by pain in the left thumb and forefinger, extending up the arm towards the head. The actual fit was

<sup>1</sup> Reported by Mr. L. R. Sutherland, M.B., C.M.

apparently a generalised convulsion, said to have been attended by sobbing and profuse perspiration.

A fortnight after leaving hospital the fits returned, and have since continued to recur. At times intervals of from eight to sixteen weeks elapse, at others they occur daily, even though he may be under the influence of bromides. The fits, since he left hospital, have differed from the previous ones, in so far as there has been no loss of consciousness. The aura has continued as before.

For a month before his readmission the numbness and pain in the left hand and forearm have been becoming rapidly worse, and partial paralysis of the left arm, gradually extending to the leg, has developed.

During the ten weeks he was under observation in hospital, for the second time, eighty-nine fits occurred. From 21st August to 17th September there were no fewer than eighty-seven, on an average three daily. Under the influence of treatment they gradually became less frequent, and finally ceased. For three weeks no fits occurred. On 10th October, and again on the 26th, a slight recurrence took place, all treatment having been suspended on the 21st.

*Examination.*—The limbs of the affected side are somewhat flabby and cold. There is very decided paresis of the left arm and hand, the dynamometer registering in the right 50 kilos., in the left *nil*. Quite distinct, but less decided, paresis can be made out in the left leg on resisting movement. There is exaggeration of the left knee and wrist-jerks, slight left ankle-clonus, and the superficial reflexes are active. Tactile sensation is perfect. A feeling of numbness is experienced all over the left side, particularly in the arm and leg, and to a less extent in the left side of face and left half of the tongue, but this is not constant. There is a slight facial paralysis on the left side, as estimated by the usual tests. There is slight deviation of the uvula to the left, and the tongue on protrusion is slightly deflected to the affected side. Pain, at times very acute, is complained of behind and above the right ear and in the right frontal region; and, at a point two inches above and behind the ear, an area of distinct tenderness is discovered on percussion.

The following are the results of the examination of the eyes, ears, and urine:—

DR. HINSELWOOD'S REPORT ON THE CONDITION OF THE EYES (11th September 1890).—"Well-marked optic neuritis present in both eyes, but all the changes are most marked in the right. The papillæ are swollen, and the normal cupping of the discs entirely obliterated. The edges of both discs are obscured, so that it is impossible to make out where the retina begins and the disc ends. The papillæ are of a deep greyish-red colour, but towards the outer part are surrounded by a palish halo. The veins are dilated, and the arteries are smaller than

normal. The retinae, for a considerable distance round the optic discs, have lost their transparency, and have an opaque greyish appearance, which gives a very dull fundus reflex on ophthalmoscopic examination."

DR. BARR'S REPORT ON THE CONDITION OF THE EARS (29th October 1890).—"Right ear.—Hearing power slightly under the normal; tympanic membrane fairly normal; no perforation, cicatrix, or any evidence of present or past purulent disease. Bone conduction good. The tinnitus is probably connected with some form of irritation at the auditory centre in the brain. Left ear.—Pear-shaped cicatrix in tympanic membrane; rest of membrane opaque. There are indications of a past purulent disease of the middle ear. Hearing power more impaired than on the right side."

DR. W. F. SOMERVILLE'S REPORT ON THE URINE (30th October 1890).—"A. K. — Amount of urine examined, 1·2 litres in twenty-four hours; colour, palish amber; odour, urinous; reaction, neutral; specific gravity, 1022.

	In per Mille.	Grms. in Twenty-four Hours.	
Water . . . . .	948·8	1148·5	...
Dry residue . . . . .	51·2	61·4	...
Organic material . . . . .	33·5	40·2	rel. abs.
Ash . . . . .	17·7	20·2	+ n.
Extractive material . . . . .	7·3	8·7	sl. + sl. +
Urea . . . . .	25·2	30·2	- -
Chlorides . . . . .	11·1	13·3	+ +
Sulphates . . . . .	3·0	3·6	- -
Phosphates . . . . .	3·67	4·4	n. sl. -
Uric acid . . . . .	-	...	...
Pigments . . . . .	n.	...	...
Albumin . . . . .	None	...	...
Sugar . . . . .	"	...	...
Ammon. carb. . . . .	+	...	...
Alkali phosphates . . . . .	2·46	2·95	sl. - sl. -
Alkaline earth phosphates . . . . .	1·21	1·44	+ +

NOTE.—+ = increased; - = decreased; rel. = relatively to dry residue; abs. = absolutely in twenty-four hours; sl. = slightly; n. = normal.

"Result.—I have neither seen the patient, nor do I know any clinical particulars of the case. From the examination of the urine, according to the method recommended by Mr. A. E. Haswell, pathological chemist, Vienna, I find evidences of brain irritation, as shown by the increased excretion, relatively and absolutely, of the earthy phosphates, caused, perhaps, by the presence of a tumour, or by the pressure of bone on the brain substance; or possibly, though not likely, by a very old encapsuled abscess. From the light colour of the urine, the specific gravity, the



amount of urine voided in twenty-four hours, the relatively decreased urea, and the increased chlorides, the possibility of any suppurative process, as one would find in a case of abscess or of meningitis, can be quite excluded."

In reference to diagnosis, the points which we have specially to consider are two,—first, the seat; and, secondly, the nature of the lesion.

*The seat of the lesion.*—The disease is manifestly cerebral, and implicates the right side of the brain, as the resulting manifestations are almost exclusively on the left side of the body, while the paralytic phenomena indicate implication of the motor tract. But what part of the motor tract is the seat of the mischief? The symptoms point, I think, very positively to the cortex cerebri. For it must be borne in mind that, in cortical lesions, convulsions are very common, are frequently limited, at least at their onset, to the part whose centre is irritated, and consciousness is often retained,—factors which are all present in our patient. In such cases, too, a sensory aura often precedes the epileptiform seizures, and in this instance the fits set in with numbness and pain in the left thumb and forefinger.

This last circumstance, coupled with the fact that the paralysis began in the left arm, points to a lesion having its centre about the junction of the middle with the lower third of the ascending parietal convolution. This conclusion is somewhat supported by the pain which was complained of, and by the tenderness on percussion above and behind the right ear, although it must be remembered that the seat of pain does not necessarily correspond with the seat of the disease.

*The nature of the lesion.*—The history of suppurative disease of the middle ear naturally leads to the suspicion that there might be a cerebral abscess; but this suppuration occurred on the *left* side, and in early life, a good many years before there were any symptoms of cerebral irritation; while Dr. Barr's report furnishes evidence of prolonged absence of active disease of the middle ear; so that we may almost certainly exclude the hypothesis of abscess of the brain, more especially as Dr. Somerville's report on the urine is decidedly against such a view.

That being so, we can come to no other conclusion than that we have to deal with a tumour of some kind. The most common forms of cerebral growth are tubercular or syphilitic



which might possibly be influenced by the inoculation of Koch's fluid on the one hand, and antisyphilitic treatment on the other. But there is no history of a hereditary tendency to tubercular disease, nor is there any indication of a delicacy of constitution in the patient himself. And, as regards syphilis, there is no history or symptom of hereditary transmission of the taint, nor is there any suspicion of the disease having been acquired, not to speak of the age of the patient, which of itself almost excludes it. A cancerous growth is out of the question, as the patient presents none of the characteristics of malignant disease, nor does there appear to be a family predisposition thereto.

If, then, we are right in our view that the tumour is neither tubercular, syphilitic, nor cancerous, all that we can say further is that the intracranial growths which are most commonly met with are glioma or sarcoma; and the only way of getting rid of them is by operative interference.

OPERATION BY PROFESSOR GEORGE BUCHANAN, AS DESCRIBED BY HIMSELF.—In the preparation of the patient, the steps of the operation, and the after-treatment, I followed rigidly the plan described by Victor Horsley, and had every reason to be satisfied with the result.

“Three days before the operation the head was shaved, to allow me to study the topography of the cranium. The point at which I proposed to open the cranium was fixed on by the following measurements: the distance between the root of the nose and occipital protuberance was divided into two equal parts; half an inch behind the centre point, indicating the upper end of the fissure of Rolando, was marked. From this point a line was drawn downwards and forwards at an angle of  $65^{\circ}$ ; this indicates the direction of Rolando's fissure. Three inches down, just behind this line, are situated the convolutions indicated in Dr. Ferrier's plan, as those presiding over the movements of the thumb and finger. These spots and lines were marked with a blue pencil. The scalp was then thoroughly cleansed, and a wet compress of carbolic solution kept on continuously.

“On 30th October, the day preceding the operation, the bowels were cleared out with castor-oil, the head was again shaved, cleansed, and kept moistened with carbolic acid solution.

“The operation was performed on 31st October at 9.30 A.M. Immediately before this he had a quarter of a grain of morphine subcutaneously, which is believed to have some effect in controlling hæmorrhage from small vessels of the brain.

“The patient having been put under chloroform, I made a semilunar

flap of the scalp, including the aponeurosis, the upper part of which was near the vertex, the base about 3 in. wide, across the lower part of the fissure of Rolando, that is, just on a level with the top of the pinna. One or two small arteries were ligatured. The pericranium was turned aside from part of the skull, where a trephine was applied, just at the spot previously determined by the surface marking. The trephine was rather larger than a shilling. The button of skull which was removed was placed between folds of lint, moistened with carbolic solution, and kept warm. The dura mater exposed by the trephine and the convolutions beneath seemed to be perfectly normal, and presented no evidence of any tumour or lesion. Thinking that the diseased area might be further up, behind the fissure, on the centre indicated for the arm, I applied the trephine two inches above and behind the former situation, and removed a similar disc of bone. I then

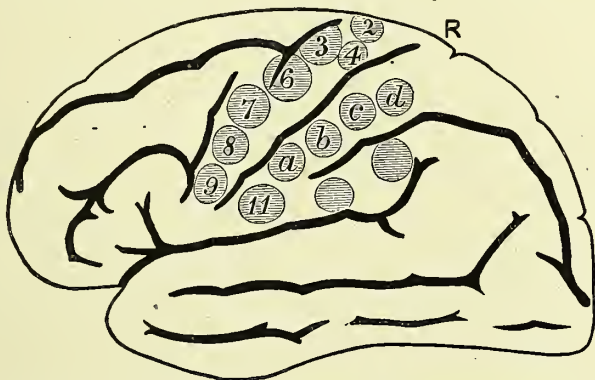


FIG. 8.—2, 3, 4, Centres for the movements of arms and legs; 6, centre for supination of hand and flexion of forearm; *a*, *b*, *c*, *d*, centres for hand and wrist; 11, *a*, *b*, *c*, *d*, are on the ascending parietal convolution behind the fissure of Rolando (R). The tumour was situated under *a*.

applied a Hey's saw on each side, in a line touching the outside of both circles, and with a lever removed the intervening bridge of bone. All the pieces were kept moist in warm carbolic solution. I now clipped the dura mater for four-fifths of the circumference of the oval aperture, about a sixth of an inch from the edge of the bone, and so exposed the cerebral surface. At no part was there indication of any abnormal condition, nor on pressing it with the point of the forefinger was there any evidence of either fluctuation or undue resistance. But at the lower part, just in the centre of the first trephine hole, the cerebral convolution seemed to bulge a little, and while feeling it with the smooth end of a director it suddenly burst asunder, and a dark red or brownish body, resembling an Orleans plum, emerged from below, and pushing aside the

cerebral substance, which seemed to have been extended over it, occupied the lower part of the opening. With my finger and thumb I found I could move it in the brain, and with the spoon-like end of a large director I lifted it out of its place, without tearing anything and without any hæmorrhage. It was regular and nearly globular, smooth on the surface as if enclosed in a thin capsule, and was about the size of a walnut. It was evidently removed entire without any breaking or bruising, as the cavity from which it came contained no débris, and it closed at once by resiliency of the surrounding substance.

"After washing the wound with a stream of antiseptic fluid, I sewed the dura mater into its place with stitches of fine silk. It came together edge to edge, except at a small part where it had been torn. I now replaced the discs of bone in their situation, and filled up the space between them with pieces of the intervening bridge of bone, which I had cut into four or five portions. The semilunar flap was then put into position, and retained with fine silver wire stitches, a little opening, into which I put a drainage-tube, being left at the posterior angle. A dressing of alembroth gauze and Gamgee cotton was applied with very slight pressure. The patient stood the operation well, and his progress to recovery was almost uninterrupted.

"The specimen, says Professor Coats, is a soft fleshy piece of tissue of a reddish colour; its surface is irregular, having a granular appearance, which on closer inspection looks almost papillary; at least there are a number of regular flat elevations of very small size. The tumour is a flat mass of a generally triangular shape, having somewhat the outline as well as the size of the suprarenal body. Its longest diameter is  $1\frac{1}{2}$  in.; its other diameter 1 in., and its thickness  $\frac{1}{2}$  in. The tissue is very friable, and there is no defining capsule.

"A portion, removed by scissors from the surface, shows the tissue to be very vascular, numerous capillary vessels forming a reticulated network. At the surface the vessels show what looks like papillary projections. Between the vessels, and to some extent clothing them, are large quantities of cells, which are of considerable size, and contain large oval nuclei.

"A portion of the tumour was hardened in absolute alcohol embedded in celloidin, and sections made with the microtome. The sections stained readily with logwood, alum-carmin, Bismarck brown, etc.

"The tissue contains numerous vessels, and each vessel is surrounded by a mantle of translucent tissue, sparsely provided with cells. This tissue, in specimens mounted in Canada balsam, is homogeneous and structureless in appearance, but in glycerine it is seen to have a finely fibrillated character. The thickness of this mantle varies considerably, in some places equalling the diameter of the vessel, in other places much less.

"The tissue generally consists of cells, mostly oval or spindle-shaped.

Between the cells there is the merest trace of intercellular substance, consisting of reticulated fibres. The papilliform appearance noted in the fresh state is not borne out in hardened specimens ; and it was due, doubtless, to the fact that, at the torn end of the tissue, the vessels with their mantle presented themselves individually.

“From the character of the tumour, it may be regarded as a spindle-celled sarcoma ; but, taking into consideration the mantle around the vessels, it belongs to the group, plexiform sarcoma.”

### III.

#### SPINAL IRRITATION.

IN the year 1828 the late Dr. Brown of Glasgow<sup>1</sup> directed attention to a class of cases illustrative of disorder of the spinal cord, to which he gave the name of spinal irritation (now sometimes called rachialgia). This affection had previously been alluded to by Mr. Player of Malmesbury, in an article in the *Quarterly Journal of Science* for January 1822, and a good many years afterwards it formed the subject of important contributions to our knowledge of it as a distinct affection, from the pen of the late Mr. Teale of Leeds,<sup>2</sup> and a few years later from the Messrs. Griffin of Limerick.<sup>3</sup> To these gentlemen we owe almost all that we know of it at the present day.

It is especially apt to occur in debilitated, nervous, and hysterical subjects; and although it is sometimes met with in males, it is, *par excellence*, a disease of the female sex. This is well shown by the statistics of Messrs. Griffin; for, of 148 cases, twenty-six occurred in males, forty-nine in married women, and seventy-three in girls. According to Radcliffe, and this is in accord with my own experience, a strain or blow upon the back is apt to prove its starting-point, and it is the opinion of some that it is at times hereditary.

The true nature of this morbid state is much disputed, and as the disease is one which is seldom, if ever, fatal, it is somewhat difficult to place its pathology upon a reliable basis. According to Brown, "the immediate cause . . . is spasm of one or other of the muscles arranged along the spine, altering the position of the vertebræ, or otherwise compressing the nerves

<sup>1</sup> "On Irritation of the Spinal Nerves," *Glasgow Med. Journ.*, 1828, vol. i. p. 131.

<sup>2</sup> "A Treatise on Neuralgic Diseases of the Spinal Marrow and Ganglia of the Sympathetic Nerve," London, 1829.

<sup>3</sup> "Observations on Functional Affections of the Spinal Cord and Ganglionic System of Nerves, in which their identity with Sympathetic, Nervous, and Irritative Diseases is illustrated," London, 1834.



as they issue from the spinal marrow." Teale, on the other hand, attributed it to congestion, which by continuance and repetition may so far impair the tone of the capillaries as to produce a state of actual inflammation; while Radcliffe seems of opinion that the opposite condition, namely, capillary contraction and bloodlessness, is nearer the truth. But whatever the correct interpretation may be, certain it is that the abstraction of blood by leeches or cupping-glasses, applied over the tender spine, and the application of blisters in the same situation,—that is, the usual remedies for local congestion,—are the most efficacious means of cure.

The most characteristic symptom of spinal irritation is tenderness of the spine, which may implicate it in its whole length, but much more frequently at one or several parts, and the symptoms of functional derangement of internal organs, and the pain so often complained of, generally bear some relation to the seat of tenderness. Sometimes the part implicated is best brought out by passing a hot sponge along the spine, a feeling of scalding being experienced when the part implicated is reached. In a large proportion of cases the patient makes no complaint of uneasiness in the region of the spine, and when asked if he has any pain in the back, answers as often in the negative as in the affirmative; so that, unless this symptom is specially looked for, and the spine carefully examined, the tenderness is exceedingly apt to be overlooked. For this reason, and because there is hardly a single disease in the whole category of ailments which may not be more or less accurately simulated by it, errors of diagnosis are of everyday occurrence. The following points, all of which, with the exception of the last, perhaps, I can verify from my own experience, are specially insisted upon by the Messrs. Griffin as aids to the diagnosis:—

1. "The pain or disorder of any particular organ being altogether out of proportion to the constitutional disturbance.

2. "The complaints, whatever they may be, usually relieved by the recumbent position, always increased by lifting weights, bending, stooping, or twisting the spine; and, among the poorer classes, often consequent to the labour of carrying heavy loads, as in drawing water, etc.

3. "The existence of tenderness at that part of the spine which corresponds with the disordered organ, and the increase of



pain in that organ by pressure on the corresponding region of the spine.

4. "The disposition to a sudden transference of the diseased action from one organ or part to another, or the occurrence of hysterical symptoms in affections apparently acute.

5. "Perhaps we may mention the occurrence of continued fits of yawning or sneezing. They are not very common symptoms, but, as scarcely ever occurring in acute or organic diseases, they may generally be considered as characteristic of nervous irritation."

With these preliminary remarks, I pass on to give a few illustrations of this curious complaint, commencing with the most familiar varieties :—

CASE 40.—A short time ago a lady brought her daughter to me from the country, because she feared she had heart disease. On inquiry, it seemed that she had for a considerable period of time suffered from palpitation, and from pain immediately below the left nipple, and, on asking her to point to the affected part, she covered it with the point of the finger, not with the palm; that is to say, the uneasiness was very localised, as it generally is in these cases. I asked her if she had any pain in the back, and she answered no; but, on examination, very decided tenderness was experienced on pressing upon the spine opposite the seat of pain in the side. She seemed in every other respect a very healthy girl, and I was able to assure her that those who feared they had heart disease generally had it not, and that there was a good prospect of speedy amendment. A fly-blister was applied over the tender part of the spine, and a fortnight afterwards, when I next saw her, the spinal tenderness had completely disappeared, and palpitation and pain below the nipple were no longer complained of.

CASE 41.—The patient is a strong, robust-looking young woman, æt. 25, and evidently hysterical. She was admitted into the hospital on 15th November 1880. She made no mention of any affection of the spine, but complained of pain underneath both mammæ, and in the left iliac region. The pain under the left mamma had been present for about eighteen months, and was of a dull, aching nature; that on the right side was much more acute, and commenced suddenly in August last.

The thoracic and abdominal viscera seemed quite healthy; but, on making firm pressure with the fingers along the spines of the vertebral column, two tender spots were discovered at different levels, corresponding very much to the points at which the spinal nerves issue which supply the areas in which pain was complained of. The patient winced visibly when these points were pressed.

A tonic mixture containing strychnia and quinine was ordered, and on 18th November two large blisters were applied over the tender parts of the spine. This was followed by a certain degree of relief from the mammary and iliac pain, by no means, however, complete. On the 29th, therefore, the blisters were repeated, and by the 8th December the patient felt quite relieved of her symptoms.

CASE 42.—The patient was *æt.* 22, and enjoyed fairly good health, but for three months before admission to the hospital, on 27th November 1880, she suffered from pain about 3 in. below the left nipple, which was increased on deep inspiration; she had also a dry, spasmodic cough without any expectoration, and exercise of any kind rendered her breathless. After taking food, too, she complained of pain in the gastric region, and was troubled with sour eructations. Her appetite was good. Two years ago the menses were suppressed for three months, and during that time she had an attack of pain in her breast, as at present, but on the return of the menses the pain disappeared. There was no apparent disease of the stomach at the date of admission to the hospital, and the heart and lungs were sound. On examining the spine, however, tenderness was detected from the sixth dorsal to the first lumbar vertebra, and chiefly on the left side of the spine. Of this condition patient was quite unaware until examined. On 10th December she was wet-cupped over the upper portion of the tender part of the back to 10 drms. The almost immediate result of this was the entire disappearance of the spasmodic cough and the stomach symptoms, but the mammary pain still remained. On 16th December the cupping was repeated over the lower portion of the tender part, with the result of removing the pain of the side.

CASE 43.—A. B., a rather anæmic, weakly-looking young woman, *æt.* 21, was admitted on 2nd June 1879, complaining of persistent vomiting of several months' duration. She had been exceedingly healthy until her seventeenth year, when menstruation was suppressed for two months, and since then she has always complained of more or less weakness. Her occupation as a weaver was very laborious, the hours of labour being long, and she had to work in a bent posture, the chest being almost constantly pressed against a steel bar in front of the machine. Her meals were hurriedly taken, and her diet consisted chiefly of tea and bread and butter. In January last she became unable to work, her appetite failed, and she suffered from pains in her chest; her breathing became very laboured, and at times she had a sensation of choking, feeling a desire to have the window opened. She was also troubled with a hard, dry cough, unattended with expectoration. The application of mustard poultices, and, later, of tincture of iodine, failed to

relieve the pain. About the middle of January she began to vomit mouthfuls of food, about fifteen minutes after meals. The vomiting was easy and painless, and there was no preceding nausea nor any sensation of pain while the food lay in the stomach. The vomited matters consisted of undigested food, mixed with green streaks and patches, and blood was never observed to be present. The regurgitation of the food went from bad to worse, occurring after every kind of food, and at gradually decreasing intervals after meals, sometimes even taking place during the act of eating. In March last a blister was applied over the epigastrium, and was followed, after a week or two, by iodine; but this treatment afforded no relief. In spite of everything which was tried, the symptoms became gradually worse, and in May she began to suffer from severe pain across the stomach and upper part of the bowels. The pain, which was constant, and so severe as to confine her to bed, subsided shortly before admission to the hospital, at which time she was in a state of the most *extreme emaciation*. Since the commencement of her illness her bowels have been very costive, but she now menstruates regularly. On examining the abdomen, it was seen to be extremely collapsed, so much so that normal tympanites was difficult to make out, and the abdominal aorta was seen pulsating quite distinctly. There was a certain degree of tenderness in the epigastrium, and pressure here caused some convulsive twitching of the trunk and hands. No tumour could be felt, and there was no evidence of disease in other organs. An examination of the spine, however, showed that there was distinct tenderness for about 2 or 3 in. at the junction of the middle and lower dorsal regions. A consideration of the symptoms of the case appearing to negative the existence of any organic disease of the stomach, or any cerebral affection, it was suspected that they might be due to spinal irritation. The tenderness of the spine, age and sex of the patient, her nervous, almost hysterical temperament, and the character of the symptoms generally, supported this diagnosis.

The treatment consisted in the application of a blister over the painful part of the spine. The vomiting ceased after the blister rose, and the patient has vomited only once since, and this was in connection with taking some purgative medicine. Her diet, which at first was rather restricted, has now been enlarged, and she was dismissed in perfect health.

CASE 44.—Many years ago, a labourer, *æt.* 42, was admitted into the Royal Infirmary, complaining of pain, which, commencing in the lumbar region, “went in stounds” down the outside of the right thigh and leg nearly to the ankle, *i.e.* along the course of the sciatic nerve. Two years previously he had an attack of what he called lumbago, the pain of which was aggravated by motion, especially on stooping or rising

suddenly, but on that occasion the leg was not implicated. The attack of sciatica commenced two months prior to admission, the pain in the limb being much more marked than in the back. It was increased by motion and by pressure behind the trochanter, and was worse at night.

No history of venereal affection of any kind could be obtained, however, although a number of small, coppery, erythematous spots, about two to four lines in diameter, were scattered over different parts of the trunk and limbs, which had rather a suspicious appearance. There was no evidence of digestive derangement; the tongue was clean, bowels regular, skin rather muddy, pulse 82, regular, and of good strength.

This was doubtless a case of sciatica, but sciatica merely means pain along the course of the sciatic nerve; and it is therefore necessary in every case to endeavour to ascertain the cause of the pain, or rather the nature of the condition of which the pain is the expression. In some cases no cause can be detected, and then the pain itself must be directly attacked, as, for example, by the subcutaneous injection of morphia, or the use of the continuous current.

Sciatica is sometimes the result of an injury, or is due to inflammation attacking the sheath of the nerve, but there was no evidence of either of these in this case. It is sometimes a manifestation of gout or rheumatism, but the patient was apparently neither gouty nor rheumatic, nor had he any hereditary tendency thereto. It is sometimes the result of digestive derangement, but the digestive organs appeared to be in good order. It may occur in connection with gonorrhœa, in which case it must be regarded as a variety of gonorrhœal rheumatism, but the patient had no discharge from the urethra, and there was no history of such a condition. It is occasionally a symptom of syphilis, and in this case the dusky tint of the skin, the coppery stains, and the nocturnal exacerbations of the pain, led to the suspicion that it might possibly be the result of this taint.

Finally, it might be a symptom of spinal irritation, in which case pain on pressure over the spine should be present. A careful examination of the spine was accordingly made, although the patient said that he had no uneasiness in that situation. On inspection, no abnormality could be detected, but very decided tenderness on pressure was noted over the spinous processes of the upper lumbar vertebræ, to the extent of about 2 in. The tenderness was equally distinct on each side of the spine in this situation, but pressure upon the tender part did not aggravate the sciatic pain. Notwithstanding this, the conclusion arrived at was that in all probability the sciatica was the result of spinal irritation.

Accordingly, six leeches were applied on two occasions over the seat of the spinal tenderness. The first application diminished the spinal tenderness, while the second removed it almost entirely and diminished

the sciatic pain. A few days afterwards a fly-blister was applied in the same situation, and by the time it had healed both the sciatic and the spinal pain had completely disappeared.

Here is an instance of spinal irritation simulating disease of the liver :—

CASE 45.—A few years ago I was hurriedly summoned to the bedside of a lady, *æt.* about 30, whom I found in great distress. She complained of intense pain in the hepatic region, in the situation of the gall bladder, a pain which was constantly present, but with paroxysmal aggravations. It seems that it set in gradually, and was accompanied by sickness and vomiting. At first I thought that she was passing a gallstone, and all the more so as she told me that she had a similar attack some years before. But, on inquiry, I ascertained that she had no jaundice in connection with the former attack, nor was there any trace of it during this one, and that she was not aware that she had ever passed gallstones, although little reliance can be placed on that, seeing that they are often overlooked. I also observed that she was a delicate-looking and nervous person, and that the pain was aggravated by movement. I therefore asked her if she had any pain in her back, and she said that she had. On examining it, I found that, in the dorsal region, at a point corresponding to the seat of the hepatic pain, the spine was exquisitely tender. Little doubt therefore remained in my mind that it, and not the liver, was the prime offender. Accordingly, a large blister was applied over the tender part of the spine. Next day there was great improvement, and in a few days thereafter she was able to be up, although the pain in the back and spine was still a little troublesome, especially when she exerted herself. A second blister was therefore applied, after an interval of three or four weeks, in the same situation as the last one, with immediate improvement, and she was soon convalescent and able to go about.

The next case is an illustration of a variety of spinal irritation which occurs more frequently than is perhaps generally supposed, for its true nature is very apt to be overlooked :—

CASE 46.—On the 20th of July 1871, I was requested to see, in consultation with Dr. Axford of St. Leonards, a gentleman *æt.* about 45, who, with the exception of an attack of secondary syphilis about twenty-five years before, enjoyed good health, until fifteen years previous to my seeing him, at which time he had a very severe attack of gastric fever. For this stimulants were administered very freely, which seems to have proved the starting-point of intemperate habits, which continued at intervals till recently.



He never drank excessively (indeed, was usually very temperate) in society, and entertained large parties at his own house without even being suspected of inebriety; but no sooner had the last guest retired than he made his way to the dining-room, drank large quantities of any kind of stimulant which was at hand, and in a few minutes was drunk and incapable. This was repeated almost every night for months sometimes, so that the extent to which his system was saturated with alcohol may be readily appreciated.

This induced two attacks of eczema, one of them at least being a most aggravated one, which implicated almost the whole body, and lasted some months. He had likewise two attacks of what Dr. Axford described as rheumatism of the abdominal muscles. The first was treated by a German surgeon, who mistook the case for peritonitis, and treated him with mercury and leeches applied in great numbers to the abdomen, which weakened him very much; the second by Dr. Axford, which yielded in twenty-four hours to narcotics and soothing remedies.

On recovering from the second attack of eczema, at the close of 1870, he gave up the use of stimulants entirely for three months, and since then, being much debilitated and his strength not returning, he resorted to them in great moderation and under medical advice.

When I saw him with Dr. Axford, he was very weak, could take very little exercise, and had great difficulty in walking upstairs or in going uphill, so much so that his friends feared that paralysis was setting in. His legs were slightly œdematous, and his pulse, which was rather weak, was regular though rapid, being rarely under 100 per minute.

His skin was very dark and swarthy, especially that covering the legs, where it was almost coppery, so much so that Dr. Axford, viewing this circumstance along with his extreme debility, feared the onset of suprarenal disease.

He slept well, and his appetite was good, but for a good many weeks he ate very little, owing to a frequent obstruction to the passage of food into the stomach, accompanied by severe pain, which he referred to the lower third of the sternum, and which was evidently due to spasm of the œsophagus. This spasm only occurred at times, and especially when hard or hot food was swallowed, and sometimes it lasted several minutes, and yielded pretty suddenly, when he felt the food "fall into the stomach." If he swallowed a mouthful of fluid the spasm was occasionally overcome, but if not, it increased the obstruction and intensified the pain. Physical examination of the throat and chest yielded negative results, but marked tenderness of the spine was detected in the upper dorsal region, to the extent of several inches, but more at some points than at others.



The urine was free from albumin, but frequently contained crystals of uric acid, which were passed without pain. The bowels were regular.

Many of the symptoms presented by this patient were of a nature to cause much anxiety as to the future. The dusky tint of skin and the debility pointed somewhat to Addison's disease, but it was hoped that the former was the result of bygone attacks of eczema, either alone or in conjunction with the old-standing syphilitic taint, which is well known to favour deep pigmentation of the skin, and that the latter was sufficiently accounted for by the previous illnesses, and, above all, by the intemperate habits.

The history of the case led us to fear that structural changes might have commenced in the liver; but there were no symptoms pointing with any probability to that conclusion.

The spasmodic affection of the œsophagus made us suspicious of the presence of an intra-thoracic tumour,—syphilitic, aneurysmal, or otherwise,—but apart from the spasms there was no evidence whatever of such a complication. On the other hand, there was no indication of permanent œsophageal obstruction, as the food was only at times checked in its passage downward, although too much stress must not be laid upon this fact, for it is well known that spasm of the œsophagus, as of other parts, may occur as the result of tumours which have no direct connection with the œsophagus, and which hardly press upon it at all. But the very decided tenderness of the spine led us to hope that that was the cause of the spasms, and that its removal, coupled with the use of means to soothe the nervous system and improve the general health, might have the effect of dissipating it. The prognosis therefore depended a great deal upon the result of the treatment, which was accordingly looked forward to with much interest.

A long, narrow blister was applied over the tender part of the spine; light nourishing diet, two glasses of sherry per day, and the following mixture, were prescribed:—

R Potassii bromidi . . . . .	̄ii.
Potassæ bicarbonatis . . . . .	̄i.
Carb. ferri saccharatæ . . . . .	̄ss.
Inf. calumbæ . . . . .	ad ̄xxiv.

*Sig.*—A tablespoonful in a wineglassful of water thrice daily.

In a letter received from this gentleman's wife, five days after my visit, she wrote: "The spot in the back which you found tender, and over which the blister was applied, has become very painful, so much so that he feels it whenever he moves or coughs, a thing which he never experienced before. He took food both yesterday and to-day without any choking, the first time for many a month." After the first blister

was healed a second one was applied, and in a short time thereafter the dysphagia finally disappeared. That these applications were the curative agents is proved, not only by the immediate improvement in the power of swallowing, but also by the increased sensitiveness of the spine immediately succeeding the application of the first blister; while the disappearance of the dysphagia, coincident with the removal of the spinal tenderness, showed that the former was one of the manifold symptoms of spinal irritation.

The following case is also worthy of being recorded: <sup>1</sup>—

CASE 47.—E. L., æt. 20, a servant; was admitted to the Western Infirmary on 11th February 1897, complaining of head symptoms, with spasm of the eyelids and lower jaw, of one year's duration.

*Family history.*—Her father, æt. 56, has been for four years confined in a lunatic asylum, loss of memory being the only marked symptom of his illness which his wife remembers. A sister of his was also confined in an asylum, where she died at the age of 26. The mother is alive and well, and there is no nervous inheritance on her side of the family. Of the four children, a boy and a girl died in infancy; the third, a girl, had an attack of chorea at the age of 16; and the fourth is the patient herself.

*Personal history.*—The first illness from which she is noted to have suffered was enlargement of the glands on the right side of the neck, when she was 7 years old. This decreased as she grew older, although it is not entirely absent. She began to menstruate at 14, was always regular, and remained healthy till a year ago. She never had fits, either epileptic or hysterical, and no exciting cause for her illness can be ascertained. In particular, there is no history of shock or fright. Her mother stated that she had always been somewhat excitable.

*Present illness.*—A year ago she began to suffer from severe attacks of neuralgia, limited to the right temple, and during these there was often paræsthesia, there being a sensation as of water running down the cheek. A month afterwards there followed uncontrollable spastic movements of the lower jaw, associated with a clicking noise produced in the mouth by the tongue. She had also a "heavy feeling of weakness" over the "vertex cranii," and there was spasm of the eyelids. These symptoms occurred on four consecutive nights, about 8 P.M., and lasted about fifteen minutes. A month later there were trifling repetitions of the clicking sound during the day, soon followed by spastic attacks, which sometimes continued all night, and sometimes passed off in a few minutes, to reappear next day. Since then the symptoms have remained substantially the same, save that the attacks have increased in frequency. She knows when one is about to come on by a feeling of

<sup>1</sup> Reported by Dr. William R. Jack.

stiffness in the eyelids. Five minutes later, clonic contractions of the lower jaw, above referred to, set in, and, along with these, rapid clonic contractions of the eyelids, ending in a tonic spasm, when the orbicularis resists attempts to open the eyes. Each attack lasts about ten minutes. During its continuance she cannot speak or open the eyes, but understands clearly everything that is said, and says she hears more acutely than usual. At these times she often notices a peculiar smell, as of boiled cabbage-leaves, and has a great aversion to noise. For the last year a day has rarely passed without a renewal of the symptoms in a more or less severe form. When the attack is mild, the eyes remain open. Sometimes there is an excessive flow of saliva, which dribbles from the corner of the mouth. In her sleep she is restless, moving her hands and legs about. She is of an emotional nature, sometimes weeping without apparent cause. There is never unconsciousness, nor has the tongue been bitten. She has control over the bowels and bladder. Her appetite is good, and there is no constipation.

Owing to her mistress's indulgence, she retained her situation until three months ago, when she gave it up. While in service she managed to perform her duties, and could carry plates, etc., without breakage, so that there would appear to have been no spastic movements of the arms.

*Present condition.*—The girl is slightly built, nervous in appearance, and of a sallow complexion. There is an enlarged glandular mass below the right side of the jaw. The pulse is somewhat rapid (96), but regular. The lungs, heart, liver, and abdominal cavity present no abnormality. The urine is normal. Temperature, 98°·4.

The pupils are equal, and respond to light and accommodation. There is no nystagmus.

There is distinct tremor of the legs as she lies in bed, especially when an attack begins. It is not greater on one side than on the other.

Both knee-jerks are exaggerated, and there is a tendency to ankle-clonus, especially on the left side. The forearm reflexes are somewhat more evident than usual on both sides. Even a slight touch is readily perceived on both sides, but with the æsthesiometer it is found that on the legs the two points are felt as one at their furthest separation, and on the left arm only when they are further apart than on the right. The sensibility of the finger-tips appears unchanged. There is no thermo-anæsthesia, and no loss of the sense of pain or of the muscular sense.

Pressure over the points of emergence of the supra-orbital, facial, and other nerves in the face reveals no tenderness. Pressure over the various "hysterogenic zones" on the anterior surface of the body does not give rise to tenderness, or develop an attack. There is, especially, no ovarian tenderness on either side, and pressure in those regions does

not affect the symptoms. Over the cervical spine, however, a tender area is found, extending from the third to the sixth cervical vertebra. In this region, pressure is followed by the onset of an attack.

On 12th March a fly-blister was applied over the tender portion of the cervical spine, after which the spasms entirely ceased for four days, but then returned slightly, so that the blister was repeated on 22nd March, and again on 8th April, and with complete success.

On 3rd April a mixture was prescribed containing potassium bromide and tincture of *nux vomica*, and on 14th May the patient left for the Convalescent Home much improved in every respect.

CASE 48.—But the most remarkable instance of this complaint which it has been my lot to encounter came under my notice while physician to the Royal Infirmary in 1871. This patient, *æt.* 17, a plumber, was admitted on 1st June.

It was said that he had been very nervous all his life, but had otherwise enjoyed good health until about three years prior to admission, when one forenoon, while at Ayr, he felt very sick, and vomited, and his abdomen swelled,—symptoms which were somewhat relieved by an enema. On that day, too, his hands and his head shook for a short time at intervals, and he complained of severe palpitation. For two and a half months he was unable to work, and seems to have had one or more shaking fits each day, and more aggravated ones at night. For the next six months he was free of these, and was able for light work, but complained of weakness. About this time he seems to have had some sort of tumour in the region of the upper maxilla, which was seen by one of the surgeons to the out-door department of the hospital. It was painted with iodine, and subsided in great measure, but no sooner was it better than the fits recurred; he has never been more than eight days without one, and for the last two and a half months they have been getting gradually worse. He can generally tell when one is impending, as he has, for a minute or so before it, a “feeling of weakness, and trembling in his inside.”

On entering the ward on 2nd June, I found him in the midst of one. He was lying on his back quite conscious, able to answer questions which were put to him, and to take food, but he was flapping his arms slowly and regularly, as if they were wings, closing and opening his eyelids synchronous with the movement of the arms. If we agitated him, by proposing to interfere with these movements, for example, they became incredibly rapid. When one arm was held sufficiently firm to stop its movements, the side-to-side movement of the other ceased, but he immediately began to slap the bed with it with great violence and rapidity. When both arms were bound down, he at once began to flex

and extend the lower extremities with similar force and celerity. When both his arms and legs were bound down, he rocked his head from side to side with exceeding rapidity, and said he felt as if his "heart would burst." When the pressure was removed from the upper extremities, the movements of the lower ceased and those of the former recommenced.

On entering the ward on 3rd June, I found him in the midst of another fit, which at first presented the same characters as on the preceding day, but within a couple of minutes all movements ceased, and the muscles of the trunk became perfectly rigid. While the rigidity continued he was noticed to open his mouth, and thereupon he commenced to open and shut it with great rapidity. About a minute afterwards these movements ceased, his mouth remained widely open, and then he proceeded alternately to protrude and retract his tongue with a rapidity which was perfectly marvellous. In a few minutes all the symptoms passed off, and he expressed himself as feeling well, but much exhausted. He then shook hands with me, and evidently felt much relieved that the paroxysm was over.

On the day of his admission he was put fully under the influence of chloroform, but whenever its effects passed off the paroxysms recommenced. Subsequently 25 grs. of chloral were administered, half an hour after which he fell asleep, but awoke in a paroxysm in six hours. The subcutaneous injection of one-third of a grain of morphia had a similar effect. It was thus proved that the fits, which at this time were very numerous and severe, were only temporarily relieved by sedatives and narcotics.

On careful examination of the patient on the 3rd of June, it was found that the lower portion of the spinal column, from the middle of the dorsal region downward, was decidedly tender upon pressure, especially at the middle of the upper and lower thirds of this part. He was fairly nourished, but looked rather weakly and dwarfed. There was no evidence of fever; his tongue was clean, his appetite deficient, his bowels rather costive, and he denied masturbation. He was ordered light nourishing food, and 2 oz. of brandy in the twenty-four hours. Six ounces of blood were withdrawn by cupping from the tender spine, and a dose of chloral was repeated at night. On the 5th of June the following report was made:—"Spinal tenderness all but gone; has only had a few slight fits since the cupping, and none at all since noon yesterday."

By the 7th there had been no return of the fits, but as the spinal tenderness had not entirely disappeared, a long narrow blister was applied to that region.

On the 8th of June he had one slight fit at 1 P.M., which lasted about five minutes.



On the 10th of June the following mixture was prescribed :—

R Vini ferri	. . . . .	℥ii.
Solutionis Fowleri	. . . . .	℥ii.
Syrupi simplicis	. . . . .	℥i.
Tincturæ calumbæ	. . . . .	ad ℥vi.
		M.

*Sig.*—A teaspoonful in water three times a day after food.

On the 14th of June, having been allowed to go about the ward on two previous days, he had a severe fit, which lasted from 4.30 till 6.30 A.M., and which was followed by several slighter ones. This is quite in accordance with what we generally notice, that the symptoms of spinal irritation are relieved by a rest, and aggravated by exertion.

On the 3rd of July, having had no fits since the 14th of June, and being otherwise well, although his intellectual powers were, as they had all along been, decidedly below par, he was dismissed.

Although cases presenting some features in common with the above have from time to time been observed and recorded, this is, taken as a whole, unique, as far as my reading and experience go. The occurrence of anomalous functional disorders associated with well-marked spinal tenderness, and the removal of the symptoms by treatment applied over the seat of the tenderness, prove, in my opinion, the correctness of the diagnosis. It is true that a few fits—one of them a severe one—occurred after the leeching and blistering; but this by no means invalidates the conclusion arrived at, for we often find that the immediate effect of the most appropriate treatment in this, as in many other diseases, is rather to aggravate than to alleviate the symptoms, while the ultimate result is all that can be desired.

The results obtained in the preceding cases by blistering and the local withdrawal of blood were so satisfactory, that it was not necessary to have recourse to other methods of treatment, such as the passage of a continuous current of electricity through the vertebral column, from which good results have been recorded.

Did space permit, many other illustrations of this curious complaint could be given. But enough has been said to prove—first, that there is such a disease as spinal irritation; secondly, that its symptoms are of the most varied kind, so much so that it may simulate almost every known ailment;



thirdly, that if we are on our guard, and make a careful examination of the spine, their true nature can generally be ascertained; and, fourthly, that remedies applied directly to the seat of the spinal tenderness, especially leeches and blisters, are the most efficient means of cure, and that, in the majority of cases, they are speedily and often permanently successful.

#### IV.

### THE DIAGNOSIS, PROGNOSIS, AND TREATMENT OF SYPHILITIC AFFECTIONS OF THE NERVOUS SYSTEM.

It may be safely affirmed that there is hardly a disease of any organ which may not be more or less closely simulated by syphilis, more especially in its later manifestations. A long experience has convinced me that this circumstance is fraught with grave errors of diagnosis, and is responsible for the sacrifice of multitudes of lives every year. These errors are due, in some cases, to an insufficient acquaintance with the endless variety which syphilitic manifestations may assume, though more frequently to the absence of a history of infection, and, above all, to a very prevalent belief that, if a patient remains free from symptoms for several years, he is safe from further trouble; whereas I should be inclined almost to go the length of saying that the longer the interval since the infection, the greater is the likelihood of syphilitic diseases of internal organs, unless, of course, the patient has been put through a long-continued and full course of antisymphilitic treatment.

In a paper published by Dr. Charles R. Drysdale,<sup>1</sup> I find the following remarks:—"Diday, and in this opinion I am inclined to agree with him, considers that modern syphilis, as the present generation sees it, is, in most cases, a mild disease, generally curable enough; and adds that but few cases are followed by visceral disease or affections of the nerve centres. He in no way disapproves of mercury, but recommends it only when severe outbreaks of the disease take place, in order to lessen their effects on the health. 'Mild' syphilis he treats without mercury."

But few cases of syphilis are followed by affections of the nerve centres, and mercury is only necessary for severe outbreaks

<sup>1</sup> "Is Mercury an Antidote to Syphilis?" *Brit. Med. Journ.*, London, 27th Nov. 1886.

of the disease! Such, I have reason to believe, are not only the views of the writer of the paper, but also of a large number of my professional brethren; and as they are almost diametrically opposed to my own experience, it is of the greatest importance, in the interests of the community, that we should endeavour to arrive at the truth. My view may be stated thus—that just because “mild” syphilis is apt to be treated in a cavalier fashion, and without due care and persistence, disease of the nervous system is very apt to follow in its wake; and that such disease is much more common than is generally supposed.

GENERAL DIAGNOSIS.—Before proceeding to the narrative of cases, it may be well to consider the grounds upon which a diagnosis of the syphilitic nature of a lesion of the nervous system may be made, and perhaps the best plan is to state them in a series of propositions. Many of these are, of course, familiar to all, but it is necessary to refer to them shortly, in order to complete the picture.

1. *A history of the entrance of the syphilitic poison into the system.*—Positive evidence of this is of great value, but negative evidence should not divert us from our suspicion, if, for other reasons, a syphilitic basis is probable. Many patients are ignorant of or forget their having contracted syphilis (for the initial lesion is often a very trifling matter, and the poison may enter the system in a great variety of ways), while many are loath to admit that they have ever exposed themselves to such infection. The interval, too, which has elapsed since the time of infection is often so long as to put us off our guard, and to render it likely that we may fail to connect the disease of the nervous system with the syphilitic contamination, as cause and effect; while, with certain limitations, it may almost be said that the longer the poison has lain dormant in the system, the more likely are internal organs to suffer. Of the thirty-three cases to be mentioned, there were nineteen in which the time of infection was known, and in them the intervals elapsing before the nervous affection set in were  $2\frac{1}{2}$ ,  $3\frac{1}{2}$ ,  $4\frac{1}{2}$ , 5, 6, 7, 8, 9, 10, 13, 13, 14, 15, 16, 16, 18, 20, 25, and 30 years. We must also bear in mind that diseases of the nervous system may be the result of hereditary syphilis, the history and evidences of which must be carefully inquired for.

2. *The discovery of other manifestations of syphilis.*—In those

comparatively infrequent cases of implication of the nervous system in the secondary stage of syphilis, we are pretty sure to find evidences of the disease on the skin, mucous membranes, etc. But as the nervous system generally suffers in the late stages, such evidences are not certain to be found, and, when present, they are usually much less numerous. What we must specially look for now are tubercular eruptions, serpiginous ulceration, gummy tumours in the subcutaneous tissues, deep ulceration of the palate or of one side of the throat, syphilitic disease of the tongue (which must not be confounded with the so-called tylosis linguæ), periostitis, enlargement of a testicle, or amyloid disease of internal organs without any other probable cause to account for it.

3. *The discovery of traces of bygone syphilitic manifestations.*—Amongst these may be mentioned a cicatrix upon the penis, usually slight, and not otherwise satisfactorily accounted for: circular cicatrices on the skin, with sharply-defined edges, and often with coppery areolæ (these are especially valuable if not situated below the knee); scars at the angles of the mouth, or on the palate or fauces, perforation of the septum nasi, atrophy of a testicle, or indurations upon the superficial bones, the remains of attacks of periostitis.

4. *The presence or the history of pain in the joints, bones, or head.*—This feature is very suspicious if it is markedly worse at night. Indeed, it may almost be said that pain which is agonising by night, and nearly disappears by day, is pathognomonic of syphilis. At the same time, the converse does not hold, for syphilitic pain is not always nocturnal in its exacerbations. When such pain is in the head, it usually involves only a part of it,—oftenest a lateral half, or it may be very localised, in which case it is often accompanied by tenderness on pressure.

Sleeplessness is a frequent concomitant of headache, but often occurs independently of it, and when met with in persons who are not advanced in years, and along with other symptoms pointing in the direction of syphilis, it is a very suspicious symptom. It may be permanent, or there may be intervals of comparative or complete immunity from it.

5. *The appearance of the patient.*—The syphilitic subject is very likely to have lost his healthy appearance, and to have a dirty, earthy, sallow complexion, which is all the more marked the longer the poison has remained unchecked in the system.

This peculiar form of anæmia is not constantly present, but, when pronounced, is very significant of syphilis to the skilled observer, especially if he knows the patient to have had a clear complexion in earlier years.

But although there is conclusive evidence that the patient has contracted syphilis, or even if he presents unmistakable symptoms of that disease at the time, it does not follow of necessity that the disease of the nervous system is syphilitic; for there is nothing to prevent a syphilitic subject from having a non-syphilitic nervous trouble. The combination may be a mere coincidence, although such cases are far from common, and demand very careful investigation into all their surroundings, before concluding that the affection of the nervous system is not specific.

6. *The age and sex of the patient are very important.*—Syphilitic affections of the nervous system are met with at all ages, but most usually at or before middle life. If, therefore, we are able to exclude other causes of the disease under observation, which are common in comparatively young persons, the probability of syphilis is great. Thus, if hemiplegia occurs at the age of 30 or 40, and there is no kidney or heart disease, no traumatic cause to which it can be traced, and no premature degeneration of the coats of the blood vessels which are within reach, the suspicion of a syphilitic basis is strong. My experience coincides in this respect with that of Buzzard, who says that, "putting aside cases of injury, hemiplegia or paraplegia (occurring in a person between 25 and 45 years of age, which is not associated with Bright's disease, nor due to embolism, from disease of the cardiac valves) is, in at least nineteen cases out of twenty, the result of syphilis."<sup>1</sup> Again, epileptic convulsions, due to syphilis, very rarely set in under 20, and generally long after that age; while genuine epilepsy, in a large proportion of cases, commences between 10 and 20 years (in 106 out of 172 cases, Reynolds). Of the thirty-three cases recorded, the syphilitic nervous affection occurred in twenty-eight, between the ages of 24 and 45; and in the remaining five, the patients were 48, 48, 49, 62, and 62 years old.

The influence of sex is also well marked, there having been

<sup>1</sup> Thomas Buzzard, "Clinical Aspects of Syphilitic Nervous Affections," London, 1874.



twenty-seven cases in males to six in females, a circumstance which is due mainly to the fact that syphilis is much less frequently contracted by women than by men.

7. *The occupation of the patient.*—Syphilitic affections of the nerve centres are believed by Lancereaux and others to be much more frequent amongst the members of the learned professions, and those who work with their heads, than amongst the lower classes, and those who work with their hands, owing to the demand for greater exertion of the brain, and I daresay, relatively they are; but I am not inclined to make much of this from a diagnostic point of view, having encountered so many cases in hospital practice. This probably arises from the greater frequency of syphilis among the working classes, and from the very general absence of careful and prolonged treatment in the earlier stages of the disease.

8. *Syphilitic nervous lesions are frequently multiple.*—Although often single, they have a great tendency to this characteristic, so much so, that whenever we meet with symptoms pointing to the existence of two or more separate lesions of the nervous system—for example, paraplegia and paralysis of a cranial nerve—the suspicion of syphilis being at the root of them must be seriously entertained, especially if we are able to exclude such disorders as diphtheritic paralysis, which should not be difficult, if we are on our guard. For instance, a gentleman, æt. 30, whom I had treated for secondary syphilis in 1879, came to me in January 1881, on account of diplopia, the result of slight paralysis of the left sixth nerve. Next month he had a typical epileptic convulsion, preceded and followed by nocturnal headache. All these symptoms speedily vanished under the influence of iodide of potassium; but, some months later, he had an attack of left hemiplegia, for which antisyphilitic treatment, followed by a voyage to Australia, was prescribed. Since then, he has remained well, although he has never quite lost a slight limp in walking.

9. *The variability of the symptoms.*—If the symptoms of a brain lesion vary much from time to time, independent of treatment, and without any other obvious cause, the syphilitic basis of them is probable, for we rarely find this—to the same extent at all events—in the case of non-syphilitic affections. This feature is well illustrated in Case 69.

10. *In cerebral syphilis certain fundamental types are very*



*often recognised.*—These, according to Heubner, are as follows:—

(a) Psychical disturbances, with epilepsy, incomplete paralyses (seldom of the cranial nerves), and a final comatose condition, usually of short duration. This type usually depends upon the presence of a gumma in the subarachnoid space of the convexity of the cortex, which secondarily attacks the brain, and leads to softening of the subjacent parts, or upon diffuse gummatous meningitis. (b) Genuine apoplectic attacks, with succeeding hemiplegia, in connection with peculiar somnolent conditions, occurring in often repeated episodes; frequently phenomena of unilateral irritation, and generally at the same time paralyses of the cerebral nerves. This form is generally due to syphilitic disease of the arteries, leading to their obstruction and to softening of the motor ganglia, especially of the lenticular and caudate nuclei. It is often accompanied by a new growth, commencing in the membranes at the base, and extending to a variable depth into the interior of the brain. The peculiar somnolent conditions, common in this variety, are probably the result of narrowing, without total obstruction, of a large number of arteries, thus making an injurious impression upon the whole brain. (c) Course of this cerebral disease, similar to that of dementia paralytica (general paralysis of the insane), but frequently accompanied by epileptiform attacks, nocturnal headache, or implication of cerebral nerves.

In this type there are no gross anatomical lesions, and it is supposed by some that repeated hyperæmias, affecting especially the grey cerebral cortex of the anterior lobes, may be the cause of the symptoms. But in certain cases there has been found an unusually marked proliferation of nuclei around the capillaries of the cortex, whose walls are thickened, sclerosed, and in a state of fatty degeneration, and which are apt to be obliterated.

When the spinal cord is attacked, there is great tendency for the disease to set in with symptoms of spinal irritation, followed by paralysis, which rapidly increases, and the affection progresses in the form of an acute spinal paralysis.<sup>1</sup>

11. *Eye symptoms.*—A careful examination of the eye and its appendages frequently helps us to the diagnosis of a syphilitic nervous affection, or at least arouses the suspicion that the

<sup>1</sup> For further particulars, see “Cyclopædia of the Practice of Medicine,” edited by von Ziemssen, article by Heubner, vol. xii. p. 293.

patient is tainted with syphilis, for the two propositions are not identical.<sup>1</sup>

While any or all of the nerves supplying the muscles of the eyeball may be affected (ophthalmoplegia externa and interna), the third and sixth are those which are most frequently implicated in syphilitic disease, especially that branch of the oculomotor for the supply of the internal rectus muscle; and nuclear paralysis of the sixth nerve, with conjugate deviation of the eyeball, is of more diagnostic importance, as far as syphilis is concerned, than peripheral paralysis of that nerve. The cornea and iris are the structures of the eyeball which are most frequently the seat of syphilitic affections. An interstitial inflammation of the cornea, accompanied by dulness of hearing and faulty development of the teeth, as pointed out by Hutchinson, may be regarded as distinct evidence of heredo-syphilis. More than 50 per cent. of all cases of iritis are said to be of syphilitic origin. It occurs usually during the secondary stage of the disease, and is generally symmetrical. When it is accompanied by the development of minute gummata along the margin of the pupil, or in the substance of the iris, it is pathognomonic of syphilis, and occurs, as a rule, at the close of the secondary or beginning of the tertiary stage of the disease. When the iritis extends to the choroid (irido-choroiditis), or when the whole of the uveal tract is simultaneously affected, associated with opacities in the vitreous, the disease probably has a very deep hold upon the system, and sooner or later symptoms of lesions in other organs, as the brain or spinal cord, may be expected to occur. On account of the intimate nutritive and anatomical relations of the choroid with the retina and optic nerve, these structures are often implicated, giving rise to dimness of vision, with atrophic patches in the choroid in the region of the macula, or at the periphery of the fundus. This form of inflammation occasionally ends in atrophy of the eyeball, and is of far more serious import than choroiditis disseminata, of which about one-half of the cases are said to be syphilitic.

Affections of the retina and optic nerve are comparatively rare, apart from affection of the choroid; but in some cases of syphilis the patient complains of central dimness of vision, and in such cases the ophthalmoscope reveals a general mistiness of

<sup>1</sup> For the information which follows, I am much indebted to my colleague, Dr. Thomas Reid, as well as to Dr. Freeland Fergus.

the whole retina, with veiling of the optic nerve entrance. Such cases of retinitis usually implicate both eyes,—the one after the other,—are generally transitory, and are characterised by the fact that it is usually the central region which is most affected. The optic nerve may be affected in various ways (neuro-retinitis, neuritis, atrophy), but the appearances presented on ophthalmoscopic examination do not present any characteristic features to distinguish them from those which accompany non-syphilitic affections of the brain or cord, or of their membranes.

12. Syphilitic affections of the nervous system are generally unaccompanied by syphilitic affections of the other viscera, and *vice versa*,—a circumstance which should be borne in mind, lest erroneous inferences might be drawn. Of the thirty-three cases already referred to, there was not a single one in which there was clinical evidence of the implication of any other internal organ.

13. *The results of treatment.*—In all cases in which there is a suspicion of the syphilitic basis of an affection of the nervous system, we should give the patient the benefit of the doubt and put him upon antisyphilitic treatment. If the symptoms unmistakably yield, our suspicion becomes a certainty, although the converse does not always hold good. A syphilitic lesion, even although we succeed in removing it by treatment, may have so compressed and damaged the tissues in which it was embedded, as to preclude the possibility of a complete restoration to health. Syphilitic disease of the coats of the blood vessels, too, may lead to their occlusion, and to softening of the parts supplied by them, which cannot, of course, be influenced by mercury or iodine. Hence hemiplegia setting in suddenly is much less likely to be cured than when the symptoms develop gradually. In like manner, hemiplegia which is followed by descending degeneration of the lateral column of the cord, which is a non-syphilitic lesion, cannot entirely be recovered from.

PROGNOSIS.—In this respect a good deal will depend upon the situation and extent of the lesion. Thus, if the symptoms point to serious implication of the fibres of the motor tract, the prognosis is, *cæteris paribus*, not so favourable as when their functions are either not affected at all, or not gravely compromised. Or, if the coats of a large blood vessel are the seat of syphilitic degeneration, and thrombosis ensues, the prognosis

is much less favourable than when a gumma in the vicinity compresses the vessel, because the latter disappears under anti-syphilitic treatment, and the patency of the vessel may be restored. The former condition can generally be suspected, if the paralysis sets in with great rapidity, and is of high degree, instead of being partial and slowly induced. In cases of cerebral paralysis, too, the prognosis is unfavourable if well-marked symptoms of secondary descending sclerosis of the crossed pyramidal tract ensue; but it is worthy of remark that, when the symptoms are not pronounced, they may in great measure disappear under mercurial treatment, although it is somewhat difficult to understand why this should happen.

In forming an opinion as to the probable upshot of the treatment, we must take cognisance of the duration of the lesion, although the extent of the improvement is often surprising, even in cases of considerable standing. A great deal will also depend upon whether the patient comes under the care of a practitioner who not only suspects the source of the mischief, but is also alive to the necessity for energetic and persistent treatment. Finally, it must never be forgotten that a syphilitic lesion may irritate and inflame the surrounding nerve substance, and as the secondary lesion is of a non-syphilitic character, it cannot be expected to be influenced directly by antisyphilitic treatment.

**TREATMENT.**—Whenever we suspect that a nervous affection is of a syphilitic nature, we should attack it at once with anti-syphilitic remedies, and just as energetically as if we were absolutely certain of our diagnosis. A faltering hand under such circumstances is fatal. A very prevalent belief with regard to the treatment of syphilis is, that mercury is the remedy in the early, and the iodides in the late stages. Now I quite admit that iodine is most useful in the latter, and that mercury is very useful in the former; but at the same time I hold that some of the most brilliant results are achieved by mercury in old-standing cases of syphilis, and sometimes after iodide of potassium has failed. It may turn out, however, when we have had experience of the employment of heroic doses of the iodide (even to the extent of an ounce per day), which have proved successful and innocuous in the treatment of some cases of psoriasis, that more uniformly good results may be obtained from it. Our rule should be to begin with moderate doses,—

say 10 grs. thrice daily,—and steadily to increase the dose, either until the symptoms yield, or until the medicine begins to disagree.

Mercury may be given in a great variety of ways, which need not be enumerated; but I have a decided preference for mercurial inunction, or for subcutaneous injections, as we thus attain speedy and excellent results, while avoiding derangement of the digestive organs.

For inunction the mercurial ointment of the pharmacopœia, or Shoemaker's 50 per cent. mercurous oleate ointment, may be used. The only objection to these preparations is their dirtiness, but, in the case of the latter, this difficulty may to a certain extent be overcome by preparing it without heat. In this way we obtain an ointment which, when freshly prepared, has a faint lavender tint. The inunction should generally be continued for months after the symptoms have yielded, and those who keep their teeth and gums scrupulously clean are much less liable to salivation. The subcutaneous injection of the perchloride of mercury has one great objection, namely, that it may induce painful indurations or even abscesses. Various mixtures have been devised with the view of overcoming this obstacle, but none of those which I have tried possess any marked superiority over a simple solution of 4 grs. in an oz. of distilled water, of which 15 to 30 minims ( $\frac{1}{8}$  gr. to  $\frac{1}{4}$  gr.) may be injected daily. With the view of preventing the occurrence of inflammatory reaction, the following procedure, in whole or in part, may be adopted. The skin is first frozen with ether spray, or with a small piece of smooth ice, the surface of which is sprinkled with salt, and applied for a couple of minutes with the aid of a folded handkerchief. One-eighth of a grain of sulphate of morphine is then injected deeply into the cellular tissue of the hip or other insensitive part, or where there is much subcutaneous fat; the syringe is then detached from the cannula and filled with the sublimate solution, and in two or three minutes it is again attached to the cannula, and the solution injected. Thereafter a lump of ice is kept applied to the part, until all uneasiness has subsided. The rapidity with which syphilitic manifestations sometimes disappear, as well as the small quantity which requires to be used, as compared with the internal administration of the drug, is sometimes very astonishing, as illustrated in Cases 50 and 56.



The following cases have not been selected on account of their rarity. Many of them doubtless possess exceptional clinical interest, but others are examples of the more familiar forms of syphilitic nervous affections. The cases will be found to afford excellent clinical examples of most of the varieties of syphilitic affections of the nervous system, and thus well illustrate the general statements which have been made in the preceding sections :—

## SYPHILITIC AFFECTIONS OF NERVOUS SYSTEM.

### A. CEREBRAL CASES.

#### HEADACHE.

*CASE 49.—Severe headache, with paroxysmal exacerbations of four months' duration, not nocturnal; suspicious cicatrices on patient's body and on penis. No relief under potassium iodide, but rapid cure under mercurous oleate ointment.*

D. M., æt. 38, a blacksmith, was admitted to Ward 2 of the Western Infirmary on 10th February 1885, complaining chiefly of severe pain in the forehead and upper part of the head, which had been present for about four months. The family history was good, and, with exceptions to be narrated further on, he had previously enjoyed good health.

About four months before I saw him he was suddenly seized, while sitting at the fire, with a violent pain in the forehead, above the left eye. It lasted several hours, and he was then free of it for about a fortnight. After that he had repeated attacks, and noticed that the intervals between them gradually became shorter, and from the beginning of the year the pain had been almost constantly present, although with occasional paroxysmal exacerbations. The pain was often very intense, so much so as frequently to induce delirium, and altogether to prevent sleep, although it was not worse at night. About the beginning of January his eyesight became somewhat impaired, so that he was unable to read as well as he used to do. On looking at anything steadily for a time his vision became dim, as if a "scum" was before his eyes; and sometimes there was a feeling of pressure in them, especially on attempting to read. The smallest type he could read on admission was a double small pica; whilst, before the illness, he said he could read the ordinary type of a newspaper, which is only half the size of the above. Dr. Thomas Reid's report upon the eyes was as follows :—"Aided by 8-in.



convex, he is able to see the smallest print at twelve inches with either eye. The area of the field of vision is complete in both eyes, there being no defects to be found in the lateral parts of the field. The power of distinguishing colour is perfect, with the exception of deep purple, which he mistakes for black. *Ophthalmoscopic examination*.—Hypermetropia of one-twelfth found (left pupil only dilated). The left optic nerve seems rather prominent, tissue consolidated, and slight signs of effusion along the course of the vessels as they leave the optic disc; but no distinct evidence of there having been choked disc or engorged optic nerve, the disturbance not being more than is sometimes found in a high degree of hypermetropia. The defect of vision which he complains of is to be referred to deficient power of accommodation rather than to an actual loss of accommodation. This deficient power of accommodation is sometimes seen to follow a shock to the nervous system."

The eyeballs were slightly prominent, especially the right; but this condition, he said, had been present from childhood. There was no paralysis of the muscles of the face, save a slight drooping of the left upper lid. On tapping all over the head, two spots were found (one over the outer angle of each eye), which were distinctly tender. For three months before admission he had lost flesh very much, to the extent, he said, of 3 stones.

The diagnosis of intracranial syphilis was made on the following grounds:—

1. Twelve years before, he suffered from an attack of gonorrhœa, which lasted three or four months. There was a rounded and depressed cicatrix on the glans penis, a little above and to the left of the frænum, and the foreskin was adherent to the glans at the sulcus. This he attributed to a burn from a piece of live coal; but from the position of the scar this seemed very unlikely.

2. About eight years before admission he had what he called rheumatism, describing it as "constant pains in the bones and joints," which were aggravated by movement, and markedly worse at night.

3. Three years before, he had a painful affection of the throat, which lasted about a year.

4. He professed never to have had any eruption of the skin; but a few scars, attributed by him to the application of croton-oil, were observed on the legs, and one of these, a little above the outer malleolus, was distinctly coppery in tint.

Before his admission into the Infirmary he had been under the care of half a dozen medical men in succession, and appeared to have been treated, for the most part, by means of quinine and other antineuralgic remedies. His last medical adviser, however, evidently suspected the syphilitic nature of his symptoms, and gave him iodide of potassium. He took it at first in 10-gr. doses, three times a day; but for a week

before I saw him the dose had been increased to 30 grs. This failed to relieve him in the slightest degree. Accordingly, on the 12th of February, he was ordered to rub into the skin daily 1 dr. of Shoemaker's mercurous olcate ointment, while 30 grs. of paraldehyde were given at bedtime.

In a few days the pain had completely disappeared. The ointment was, however, steadily persevered with, and on the 27th April, when he was last seen, he remained entirely free from his inveterate enemy.

CASE 50.—*Left hemicrania, nocturnal in character; traces of syphilis, and miscarriages. Cure under perchloride of mercury injections.*—Mrs. D., æt. 38, charwoman; was admitted into Ward 7 of the Western Infirmary on 2nd January 1886, suffering from severe, constant pain, implicating the whole of the left side of the head, and also the left eye and ear, and the left side of the nose and jaw, with some stiffness of the lower jaw. The pain was of five weeks' duration, and she could give no reason for its occurrence.

I came to the conclusion that it was syphilitic in character, for these reasons:

1. The pain was markedly nocturnal in character, and prevented sleep.
2. The skin had a dirty, earthy tint.
3. The inguinal glands were enlarged.
4. Two years before admission the hair fell out in handfuls.
5. Three years before I saw her she had a miscarriage at the seventh month, and two years thereafter a still-born child, without obvious cause to account for it.

*Treatment.*—On 5th January subcutaneous injections of the perchloride of mercury were commenced, a solution of 4 grs. to the ounce of distilled water being used, of which 15 minims ( $=\frac{1}{8}$  gr.) were injected daily.

On 19th January she would not remain longer in the Infirmary, as all her symptoms had completely disappeared. The amount of perchloride injected was only  $1\frac{6}{8}$  gr.

CASE 51.—*Severe hemicrania, not nocturnal; intercurrent attack of synovitis; cicatrices on penis, but no other manifestation. Cure under mercurial inunction and potassium iodide.*—G. W. S., æt. 30; was admitted 29th February 1876, complaining of very severe hemicrania and pain in the left shoulder, of ten weeks' duration.

Patient's former history was very satisfactory, and his appearance on admission was that of a healthy man. The pains complained of were first experienced ten weeks previous to admission, and almost from the beginning they had much the same severe character as immediately

before treatment was commenced. They never presented the markedly nocturnal exacerbations characteristic of syphilitic pains, but were as intense in the day-time as during the night. It did not occur to the patient himself that these symptoms were a result of venereal disease. Five years before he had suffered from gonorrhœa and bubo, and, two months previous to the occurrence of the symptoms referred to, had contracted two chancres on the penis. The latter sores healed within a very short time, under simple treatment, and the patient was under the impression that, with the early disappearance of these, he had escaped the more serious consequences.

On making a physical examination, two small cicatrices were discovered on the glans penis, but presenting no indurated character. The inguinal and cervical glands were slightly enlarged. On the back and shoulders was a roseolous eruption of no great extent. No other syphilitic manifestations could be discovered. There had been no falling out of the hair, and no sore throat. Treatment was begun on 1st March. The patient was ordered light diet, consisting chiefly of milk and soup, and half a drachm of iodide of potassium was taken at night. After four or five doses of this medicine had been administered, a very decided change in the patient's condition was experienced. The pain became much less severe, and every morning, after a previous night's dose, he was sensible of a gradual improvement. After 5th March mercurial inunction was carried on, contemporaneously with the administration of the potassium iodide. The former was temporarily stopped two months after its commencement, when the gums began to be sore, and slight salivation was induced, the latter on the 12th of June, more than three months after the date of its first administration. The mercurial inunction, having been intermitted for three weeks, was resumed for two weeks, when it was again discontinued, on account of the reappearance of its physiological effects. In a fortnight after the commencement of the above treatment, the pains complained of had almost entirely subsided. A complication, however, occurred on the 20th March, the left knee-joint being attacked with synovitis. For this affection local measures were employed, in addition to the foregoing general treatment. On the 24th May the disease in the knee had disappeared, with the exception of a slight amount of stiffness.

The true nature of this case might very easily have been overlooked, because the patient had no idea that his pains had any connection with a venereal taint, and gave no information under this head until he was specially questioned. Apart from the pain, too, the other constitutional symptoms were of a very slight character, and the nocturnal exacerbations which, when markedly present, are so characteristic of syphilitic pains, were

wanting. The rapidity, however, with which they disappeared under antisymphilitic treatment left no doubt of their syphilitic parentage. Those who are sceptical of the value of mercury in syphilis may be inclined to point triumphantly to the development of synovitis during the mercurial course; but it must be borne in mind that mercury is like every other drug, in so far as it is unable all at once to grapple with the taint in the system, and so to counteract it as to render it immediately powerless to call forth further manifestations.

### PARALYSIS OF CRANIAL NERVES.

CASE 52.—*Complete paralysis of left facial nerve; defective hearing on left side; tumour in region of parotid gland; history of chancre. Cure under potassium iodide.*—A carter, æt. 48, was admitted into the Western Infirmary, on 2nd February 1880, suffering from complete paralysis of the left side of the face. He had previously enjoyed pretty good health, although he had been troubled with bronchitis for five or six years during the winter months. He had been married seven years, and had three healthy children.

About six months before he came under observation, a dark spot appeared behind the ramus of the jaw, on the left side. This gradually enlarged, but soon subsided on the application of iodine. Shortly after this, however, the swelling began to spread forwards on the face, in the region of the parotid gland, until it attained a considerable size, extending from a little behind the ear to half-way between the ear and the nose, its most prominent part being about an inch above the normal level of the cheek. The submaxillary glands were unaffected. About the middle of January 1880, he noticed the paralysis of the face, which was at first slight, but gradually increased until it became complete. At this time, too, he began to suffer from severe neuralgic pain, starting from the right side of the head and extending round to the left, soon also affecting the tumour.

On admission he was found to be a strong, healthy-looking man, but the tumour on the left side of the face, and the complete paralysis of the facial nerve, gave him a very striking appearance. The paralysed muscles did not respond to the faradic current, but in an exaggerated degree, as compared with those on the sound side, to a feeble continuous current. The tumour was firm, nodulated, and tender. Hearing was defective on the left side. It might be supposed that the deafness and the paralysis were dependent upon primary disease of the middle ear, implicating the facial nerve in the aqueduct of Fallopius. Of this, however, there was no trace; and in facial paralysis, dependent upon disease



of the middle ear, certain symptoms are likely to occur which were not present in this case. In it the velum palati on the paralysed side is apt to be depressed, and the uvula to be bent like a bow, the point being carried forwards and to the paralysed side, and the base a little to the sound side. This condition of the palate and uvula is explained by the implication of the nervus petrosus superficialis major, which springs from the facial in the aqueduct of Fallopius, and communicates with Meckel's ganglion, from which the nerves supplying the levator palati and azygos uvulæ are derived. There is also, generally, a partial loss of taste in the anterior two-thirds of the tongue, on the affected side. This perversion of taste, according to Claude Bernard, is due either to "a modification of the circulation of the part, or to deficient erection of the papillæ of the tongue, preventing proper contact between them and the sapid substances." This is the result of paralysis of the chorda tympani nerve,—a branch of the facial which joins the lingual branch of the fifth nerve,—as is proved by the slightly metallic taste, first noticed by Duchenne, to result from faradisation of the membrane of the tympanum, which at the same time stimulates the chorda tympani.

The more obvious cause of the deafness was the presence of the tumour, which to a certain extent blocked the external auditory meatus, and probably induced also a certain amount of congestion of the middle ear, a view which was borne out by the improvement which took place in the hearing, coincident with the subsidence of the tumour. There could be no reasonable doubt that the facial paralysis was also due to the pressure of the tumour, and not to extension of disease of the middle ear to the aqueduct of Fallopius.

The nature of the tumour was not very obvious at first; but one of my surgical colleagues suspected that it was malignant. I was inclined, however, to hope that it was syphilitic, and all the more as he gave a history of a solitary sore on the penis, at the age of 19. Accordingly, the iodide of potassium (10 grs. thrice daily) was prescribed. This was begun upon 18th February, and by the 28th the tumour had in great measure subsided, only a broad ridge of transverse thickening, midway between the ear and the angle of the jaw, being left. By this time, too, the hearing was restored, and the paralysis of the face was improved. He then left the Infirmary, but was instructed to continue the iodide and to faradise the muscles implicated. He has not since been heard of.

CASE 53.—*Paralysis of the left sixth nerve; diplopia; pain in left side of head, markedly nocturnal; deafness most marked on left side, but due to catarrh of middle ear; traces of past syphilis. Improvement under potassium iodide.*—D. F., æt. 62, brassworker, came under my care on 25th April 1879. All his immediate relatives were dead, the causes



of death being unknown, but he himself seems to have enjoyed good health, though he was intemperate in his habits. His illness began about ten months before I saw him, and was attributed by him to his working much amongst red lead. At that time he began to complain of pain in the left side of the head, extending to the left ear, and soon involving the left eye, and of double vision, for which he sought advice at the Eye Infirmary. These symptoms persisted in spite of treatment, and, six months after their onset, he began to experience a peculiar pricking sensation on the left side of the face. About this time it was noticed that his sense of hearing was much impaired, especially on the left side.

There was found to be marked paralysis of the left sixth nerve, as he could not turn the eye outwards at all. He had diplopia on looking towards the left, and was hypermetropic.

On examining the ears, I found that my watch was audible at the distance of 1 in. from the right ear, but only when pressed against the left. The tuning-fork was heard more distinctly on the head than opposite either ear; the right membrana tympani was milky and concave, and the left more white and opaque. The Eustachian tubes were pretty patent. It was obvious, therefore, that his deafness was due to catarrh of the middle ear, and not to the lesion producing the paralysis, although the two lesions might have had the same parentage.

It was obvious that the morbid condition producing the paralysis was situated at the base of the brain, or of the skull, implicating the nerve, not at its deep origin, but in its course.

I came to the conclusion that it was syphilitic, for the following reasons :—

1. The pain complained of was markedly nocturnal.
2. Paralysis of the sixth nerve is due to syphilis in a large proportion of cases.
3. The fauces were studded all over with cicatrices, the inguinal and posterior cervical glands were enlarged, and he had a node on the left tibia.
4. He had been treated for a fortnight before I saw him with bromide of potassium, 30 grs. thrice daily, without any benefit, but when (9th May) the iodide was substituted for it, he immediately improved (on the 11th he volunteered the statement that his new medicine had already done him good), so much so that he left the hospital on 19th May. He was not cured, but was "much improved" in every respect.

CASE 54.—*Complete paralysis of right third and sixth nerves; nocturnal headache; traces of syphilis. Slight improvement only with potassium iodide, but rapid under mercurial ointment.*—Wm. B., æt. 32, a carter, was admitted into the Western Infirmary on 28th September 1882,

suffering from an affection of the right eye. Nine months before an internal squint gradually came on, accompanied by double vision, both objects seen being on a level. This seems to have disappeared in about a month ; but three months before admission he began to lose the power of elevating the upper lid, and to complain of giddiness, especially on suddenly leaving the recumbent posture. During the same time a small ulcer on the lip troubled him, and, for a month, pain in the right side of the head was frequently complained of.

On examining the right eye, it presented the following abnormalities :—He could not raise the upper lid, the ptosis being complete ; the pupil was widely dilated, and did not respond to light, and he was unable to move the eye upwards, downwards, inwards, or outwards, showing that both third and sixth nerves were paralysed.

As regards the seat of the lesion, it was probably at the base of the brain on the right side, near the pons, or in the sphenoidal fissure,—the foramen of exit from the cranium for both nerves.

As regards the nature of the lesion, I concluded that it was syphilitic, for the following reasons :—

1. The age of the patient (32), a time of life when syphilitic nerve lesions are common.

2. Paralysis of the third and sixth nerves are commonly due to syphilis.

3. The pain in the head was nocturnal.

4. He denied having ever had venereal disease, but when I pointed out to him a scar on the penis at the junction of the glans and prepuce, and the cicatrix of a bubo in the left groin, he admitted that he had contracted syphilis ten years before.

5. The small ulcer on the left side of the upper lip had an ash-grey appearance.

6. The greater part of the outer side of the left leg was covered with cicatrices, which were coppery at parts, especially at the edges. These were the scars of ulcers, which were healed up in 1880 with the aid of iodide of potassium.

*Treatment* was commenced on 1st September with 5 grs. of potassio-tartrate of iron and 5 grs. of iodide of potassium thrice daily ; the latter was increased to 10 grs. on October 20th, and by the 3rd of November only slight improvement was observed. Accordingly, at that date, mercurial ointment was substituted, of which 1 drm. was rubbed in daily.

I regret that the only note in the journal taken after this date was on the day of his dismissal, on 19th January 1883, from which I find that he had almost completely recovered.

CASE 55.—*Paralysis of the right sixth nerve and of first division of the fifth; pain in right side of the head, nocturnal in character, and tender-*

*ness on pressure ; internal strabismus of right eye ; anæsthesia of right side of brow and of right eye ; history of repeated miscarriages. Great improvement under mercurous oleate ointment.*—A married woman, æt. 36, came to me on 20th March 1885, complaining of intense pain in the head and of indistinctness of vision with the right eye. Her family history was good, and so was her personal history, with one exception (to be noted later on), till about twelve weeks before, when she was awakened about midnight by an intense pain all over the crown of the head. She got out of bed and vomited, and on this occasion the vomiting recurred twice, while the attack lasted about twelve hours. For three weeks after this she was able to continue her work, although she was never entirely free from suffering for more than two or three hours at a time, the paroxysms of pain continuing from one to three hours, and being often accompanied by vomiting. At the end of this time the pain became so commanding that she was obliged to give up work and take to her bed. For three weeks before she was admitted into the hospital the pain was confined to the right side of the head ; it was described as being of a stabbing character, and accompanied by throbbing. A few weeks after the onset of her illness she began to complain of indistinctness of vision on the right side, and it was observed that on that side she had an internal squint. The eyeball itself was extremely painful, at times feeling very hot, at times as if a piece of ice were placed upon it. Her memory had failed somewhat, and she was thin, and looked older than her years. There was found to be general tenderness of the posterior two-thirds of the right side of the head, while there were two specially tender spots, one about 3 in. above the right eye, and another about 3 in. behind that point. But while the part mentioned was hyperæsthetic, there was complete anæsthesia of the right side of the brow, and, on pressing upon the right eye, she said that there was scarcely any feeling in it,—that is to say, there was paralysis of the ophthalmic nerve (first division of the fifth). The right sixth nerve was also completely paralysed, as she was quite unable to move the eye in an outward direction. “The dimness of vision,” Dr. Thos. Reid wrote, “of which the patient complains is due to the internal squint, on account of which rays of light are not thrown properly on to the macula lutea. Colour perception is perfect, or very nearly so, with both eyes. The area of the field of vision is complete. The ophthalmoscope reveals pinkness of the optic nerve, with engorgement of the optic vessels ; this might be caused by a very slight degree of pressure. It is present in both eyes. The right pupil is unduly contracted, but responds to the action of light, and also for accommodation. There is present secondary deviation (or convergence) of the healthy eye, which shows that this case comes under the category of peripheral paralysis, meaning by that term that there is a lesion of the sixth nerve

at some part of its course, not only up to its apparent origin, but to its nucleus." There was chronic catarrh of the middle ear, with decided deafness, as the patient could only hear a watch when close to the ear, but there was no reason to suspect that it was connected with the above symptoms, the deafness being of old standing. There was no paralysis of the limbs.

As regards the seat of the lesion, it must have been at the base of the brain on the right side, probably in the vicinity of the pons Varolii, and it was suspected to be syphilitic, for the following reasons:—

1. The pain in the head was distinctly nocturnal in character.

2. The sixth nerve is very liable to suffer in syphilitic cases.

3. There was dirty, earthy pallor of the skin, and the inguinal glands were enlarged.

4. She had been married for eight years, and about twelve months after her marriage she had a miscarriage at the fourth month; two years thereafter she had a child born at full time, which survived and was apparently healthy (perhaps in the interval she had antisyphilitic treatment); then she had two miscarriages at the third month; and, lastly, three years before I saw her, she had an apparently healthy child. This family history is not conclusive, but it is rather suggestive, though not typical, of a syphilitic taint.

On 3rd March she commenced Shoemaker's mercurous oleate ointment by inunction (1 drm. daily).

On 3rd April the following note was taken:—"Patient is much improved in most respects. The pain in the head is less, and the tenderness is almost gone, except at the originally most tender spot in front. Sensation in the region of the ophthalmic nerve is returning, so that she can now feel moderate friction with the finger, although she can still allow the eyeball to be touched without wincing. The pupil remains contracted, but the internal squint is rather less."

She left the Infirmary by her own desire on the 17th, but the result of the treatment was sufficient to verify the syphilitic nature of the complaint.

### EPILEPTIFORM SEIZURES.

CASE 56.—*Right hemicrania, nocturnal; epileptiform seizures, confined to right side of body; paresis of right arm and leg, with anæsthesia of right half of body; traces of syphilis. Cure under injections of perchloride of mercury.*—Jacob B., æt. 24, a tailor, was admitted into the Western Infirmary on 1st February 1886, complaining of weakness of the right side of the body, of fits limited to that side, and of right hemicrania of six months' duration. He stated that at that time he was terribly frightened by a dog pouncing upon him in the dark. That night he was very restless, and "felt very silly." Next morning,



while in the workshop, he experienced a buzzing noise in his right ear, flashes of light before his eyes, and a peculiar sensation beginning in the head and running down the right side of the body; this was immediately followed by spasm of the right arm and leg, and he fell to the floor insensible. When he regained consciousness he complained of severe headache, and of weakness of the right side of the body, and had to give up work. These fits recurred about twice a week.

On the evening after admission (2nd February), he told the nurse that he felt a fit coming on, and he had no sooner said so than he fell on the bed unconscious. The right side of the body was rigidly contracted, the head was drawn to the right, the arm was supinated and semiflexed, the fingers were firmly closed, the legs were drawn up, and the teeth clenched. This lasted for a few seconds, then the teeth chattered and the arm quivered violently, after which the whole body became relaxed, and he breathed heavily. He had four such paroxysms in a couple of minutes, and then fell into a heavy sleep. He was quite unconscious of these phenomena; all he recollected was the premonitory sensation, and when he awoke he felt exhausted and had a very severe headache.

On 7th February he had an attack which was almost identical with that just described, but it was more severe, so much so that he fell out of bed.

On examination it was found that there was very marked paresis of the right arm and leg; he had a sensation of "pins and needles" in them, and anæsthesia was complete over the whole side, he being unable to feel the prick of a needle until the middle line was crossed. The right side of the face and head were equally affected, the right arm and leg trembling on exertion.

The following were the grounds upon which the diagnosis of cerebral syphilis was made:—

1. There was a distinct scar on the penis, and large, hard, rolling glands were detected in the groins.
2. The skin had a very dusky tint, and was studded over with little cicatrices, which were white in the centre and dark at the edges.
3. At the right elbow a scar about half an inch in diameter was found, which had distinctly coppery edges.
4. The hemicrania was markedly nocturnal.

*Treatment.*—On 8th February perchloride of mercury ( $\frac{1}{8}$  gr.) was administered subcutaneously, and this was repeated daily until the 13th, when he left the hospital without permission. Although he had only had  $\frac{3}{4}$  gr., he could then walk fairly well, and could move the arm and leg with great freedom. The hemicrania was nearly gone, and there had been no return of the fits.



CASE 57.—*Epileptiform seizures confined to left side of body; frontal headache with nocturnal exacerbation; paresis of left side of face, left arm, and left leg; traces of syphilis. Improvement under potassium iodide.*

—A labourer, æt. 42, came under observation on 18th February 1874. His father was an inmate of a lunatic asylum, and one sister died in childhood; otherwise the family history was good. He had always been a steady man, but his diet had often been poor, especially latterly. On two occasions he “lost his sight,” he said,—first, when he was about 16 years of age, and again about a year thereafter, and since then his sight has been indifferent. Four years before admission, while carrying a twelve-foot plank upon his shoulder, he suddenly felt his head drawn to the right side, and his left arm and leg, as well as his head, began to shake. He retained consciousness, however, and sat down immediately, but the fit did not pass off for about an hour and a half, and it left a feeling of numbness in the arm and leg. On the following day he had two similar paroxysms, which were preceded by giddiness of a minute’s duration; these continued for about a quarter of an hour, and were succeeded by violent pain in the forehead, which never entirely left him. He had a great many fits in all, following one another at irregular intervals,—sometimes being absent for days, sometimes for months, while one day he had as many as nine paroxysms. The last occurred about four months before admission. They were associated with a gradually increasing weakness in the muscles of the left side of the face, left arm, and leg. The pain in the head was often accompanied by eructations of sour fluid, and occasionally by vomiting, but without any preceding nausea; the vomiting was easy, and had no connection with the taking of food.

On examination, it was found that the palsy of the left arm and leg was very partial, though quite distinct, but the paralysis of the left side of the face was very marked.

The lesion was probably cortical, and was supposed to be syphilitic, for the following reasons:—

1. The pain in the head was decidedly worst at night, particularly about 11 p.m., and prevented sleep.

2. Upon the left tibia, a little below the knee-joint, a painful node was discovered.

3. The skin of the whole of the left side of the neck posteriorly was marked by cicatrices, the result of an “income” two years before, the edges of which were in segments of circles.

*Treatment.*—Before I saw him the head had been shaved and blisters applied, but without relief. On 25th March iodide of potassium, 10 grs. thrice daily, was prescribed. Within five or six days of its commencement he felt a good deal better, and was able to go about the ward; his appetite returned, the bowels became regular, and the

pain in the head entirely disappeared. By the 20th April the paresis of the arm and leg had completely disappeared, although the muscles of the left side of the face had not quite recovered. He has not since been seen.

CASE 58.—*Right-sided epileptiform attacks; right hemiparesis; paresis of right arm and right leg; right homonymous hemianopsia; syphilitic history. Great improvement under mercurous oleate ointment.*  
—A man, æt. 37, a clerk by occupation; was admitted into the Western Infirmary on 10th March 1885. His family history was good, but he was always considered a delicate child; and, after leaving school, while employed in a coal pit, he contracted inflammation of the right lung. Nine years before admission he became a clerk, but his employment did not involve very close confinement.

About six months before I saw him, on rising from a sofa, he felt a curious sensation in his head, his face was drawn to the left side, and his right arm was twisted up behind him. He was able, however, to walk to the door and call for help, but immediately thereafter he fell to the ground unconscious. His friends informed him that the fit continued for about ten minutes, during which time he frothed at the mouth, the face was drawn to the left side, and the right side of the body was convulsed. On regaining consciousness, he felt exhausted, and was inclined to sleep. Five weeks after this he had a second fit, which was not so severe, for, although he fell suddenly and was convulsed on the right side, he seems to have retained consciousness throughout the paroxysm. After this he had attacks daily, until three months before admission, when, under the influence of treatment of some kind, they ceased for good. Before each fit he felt giddy for some time, and immediately preceding it he had a curious and indescribable sensation in the right palm. Nearly from the first there was constant trembling of the right hand, and for three or four months the right arm and leg had been becoming weak. Almost from the first, too, he was troubled with attacks of pain, limited to the right side of the head, which soon became very intense. For about three months there had been pain in the right hip-joint, which, however, was not limited to the joint, but extended a little way up the right side. For some weeks, too, he had been troubled at times with giddiness and with dimness of vision, limited, he thought, to the right side of the right eye. Dr. Thomas Reid reported as follows with regard to the eyes:—"With the right eye he cannot see an object which is placed the least to the outside of a line drawn directly through the middle line of the eye. With the left eye the defect is discovered on bringing an object towards the inner side, but the defect is not so great as with the right—"Right lateral homonymous hemianopsia.' . . . The ophthalmoscope gives negative results."

The early occurrence of fits, in which the right hand and arm were specially engaged, as well as the paresis of the arm and leg, pointed to a lesion in the left lateral aspect of the cerebrum, but latterly there was also evidence of a lesion (right lateral homonymous hemianopsia) involving the left optic tract in some part of its course, above the chiasma, or the visual centre in the left occipital lobe.

I concluded that this lesion was syphilitic, for the following reasons :—

1. A distinct scar was detected on the upper surface of the corona of the penis, and which he ultimately admitted to be the result of what he was told was a soft chancre four years before.

2. Some months after this he had a sore throat and numerous ulcers on the upper surface of the tongue. His hair, too, fell out.

3. There was some enlargement of the glands in the inguinal regions, and on the inner side of the arms, just above the elbow.

*Treatment* consisted of the inunction of mercurous oleate ointment (1 drm. daily).

On 30th March, when the treatment was commenced, the following symptoms were present :—Right hemicrania ; loss of memory and frequent giddiness ; right lateral homonymous hemianopsia ; paresis of right leg and arm (dynamometer—right, 75 lb. ; left, 95 lb.) ; tremor of the right hand and pain in the right hip, extending up the side.

On 15th May the following note was taken :—“Patient is now in a very different state. The hemicrania has been gone for fully a fortnight ; the giddiness is gone, and the memory perfect ; the paresis of the leg and arm is imperceptible (dynamometer—right, 105 lb. ; left, 112 lb.), and the pain in the hip and side is no longer felt. There is still, however, the slightest tremor of the hand, and, while the vision of the left eye is restored, and that of the right decidedly improved, he is still unable to see objects placed much to the outside of the middle line with the right eye.

*CASE 59.—Epileptiform convulsions, with subsequent paresis of the right arm and right leg ; suspicious history, and traces of past syphilis. Cure under potassium iodide.*—A sailor, æt. 62, married ; was admitted on 29th May 1878. He knew nothing of his family history, but he was married, and of his three children only one survived. At the age of 32, while off the coast of America, he had numerous attacks of ague, but these had not recurred for many years.

On 10th December 1877, while doing duty as mate on board a vessel at Leghorn, he was seized with convulsions. He was in the act of going to bed when he experienced a “sleeping, prickling” sensation in the right foot, which quickly extended up the leg, trunk, and arm of that side, till it reached his head, when he became insensible. He was told

that he then became convulsed, the convulsive movements being so violent that he had to be restrained. For a few hours after the fit he felt very drowsy, and on recovering he found that the whole of his right side was very powerless.

From that time he had a return of the fits every eight or ten days (depending, he thought, on the severity of the weather), until March 1878, when he derived much temporary benefit from treatment during a residence for a couple of months in the Royal Infirmary. Before I saw him, however, the fits had returned.

The following is an account of one of these, seen by my assistant, Dr. Macrury:—"19th June.—This morning, at 7.30 A.M., while stepping into bed after having had it made, he uttered a loud cry, and was about to fall, when one of the patients ran to support him. He was put to bed, and remained there fully half an hour, perfectly intelligent, but quite unable to utter a word. About 8 A.M., *i.e.* about half an hour after he cried out, convulsions set in, implicating the whole body, but it was noticed that there was a tendency for it to be drawn towards the right side. This was particularly well marked in the face, which was contorted. The colour of the face was at first natural, but it soon became livid. The eyeballs rolled about to begin with, but were soon turned upwards and fixed, and they were all along sensitive to touch. There was slight foaming at the mouth, and continual grinding of the teeth. The pulse, which at first was quiet, soon became rapid, though it continued regular, and the respiration was stertorous. The paroxysm lasted for about five minutes, and gradually ceased, when his appearance became natural. He lay quietly as if asleep for about an hour, and then he vomited. On being questioned he answered readily, but in a confused manner. He was not quite intelligent for five or six hours, and then he said that he remembered nothing about the fit." On examination, it was found that there was partial paralysis on the right side, especially in the arm (dynamometer—right hand, 50 lb.; left, 100 lb.). The muscles responded normally to electricity, and there was no loss of sensation, but there was a good deal of tremor of the limbs. He was easily moved to tears.

I came to the conclusion that the lesion, which was probably a cortical one on the left side, was of a syphilitic nature, for the following reasons:—

1. There was no other apparent cause,—no sign of embolism, kidney disease, degeneration of vessels, etc.

2. He had gonorrhœa several times, and about eight years before admission he had an eruption on the lip, which, however, he attributed to exposure for six hours in the water, after having been capsized out of a boat. Such accidents are very apt to call out manifestations in those tainted with syphilis, and their nature is apt to be overlooked.



3. On the lower third of the left leg a group of scars was detected, with slightly circular edges.

4. The remains of nodes were found on the shins, and there was a history of nocturnal pains there.

5. There was some enlargement of the inguinal glands.

6. His complexion was sallow.

*Treatment.*—On 1st June, iodide of potassium was prescribed.

On 24th July the following note was taken:—"This patient has had no convulsion since 19th June, and the paralysis and trembling of the limbs have completely disappeared. He is about to leave the hospital."

CASE 60.—*Epileptiform seizures; double optic neuritis; severe headache with nocturnal exacerbation; transient attacks of aphasia; history of syphilis. Some relief under mercurial inunction and potassium iodide; subsequent relapse.*—J. R., æt. 32, by trade a puddler, was admitted to the Western Infirmary on the 2nd February 1892, with a history of "fits" of four months' duration.

The family history is unimportant. Four or five years ago he became subject to pain in the right hip, extending thence down the outer aspect of the thigh. He attributed it to exposure to extremes of temperature in the course of his work. It was medically treated, but without effect, and it gradually increased in severity. He has also suffered from an eruption known to puddlers as the "heat rush," which he states is common among them. It consists of pimples occasionally appearing on the shins and shoulders.

With these exceptions he remained well till May 1891, when he became affected with severe frontal headache. It occasionally ceased for a week or so, but always returned. About this time his friends noticed in him a strangeness of manner, and his memory became uncertain, *e.g.* he once took the train to Ayr, and on his way forgot the name of his destination. The headache and "strangeness" became gradually more marked and more persistent. In the beginning of last October he was seized with a "fit" while walking in the street with his brother. Fourteen days afterwards he had a second seizure while in his own house, and since then he has had several, varying in intensity and general character.

Shortly after the first seizure the sight of the left eye began to be dim, both for near and distant objects. When this commenced he "saw double" for a period of about ten days.

The impairment of vision was accompanied by pain and a feeling of heaviness in the eyeball. Two months afterwards his right eye became affected, and he states that he is now quite unable to read. He also complains of the badness of his memory.



The fits, as described by his friends, are of three types:—

1. *Major seizure*.—(a) Aura; peculiar sensation from tips of left fingers up to left eye; numbness all over, and “strange appearance.” Duration about ten minutes, after which—(b) Cry, as if of agony. (c) Mouth drawn upwards and to left; right eye turned towards nose; left eye closed. (d) Loss of consciousness, before which he prepares himself against falling by lying or sitting down, and during which the whole body is convulsed, and the tongue occasionally bitten. In this stage he foams at the mouth, and becomes very livid, the lips being almost black. Duration five to seven minutes. (e) Stertorous breathing, gradually becoming lighter; lividity passes off, and face becomes clay-coloured. (f) Peaceful sleep, from which he awakes feeling better than he has been for a few days before the fit.

2. *Medium seizure*.—(a) Aura as in major. (b) No cry. (c) Facial condition as in major. (d) Convulsive movement of right arm, but no loss of consciousness. (e) Becomes very white. (f) Recovers immediately afterwards. Total duration, ten to fifteen minutes, after which he remarks that he has been unwell.

3. *Minor seizure*.—During conversation he stutters over a couple of words or so, then becomes intensely pale, and ceases to speak. There is no loss of consciousness, and neither tonic nor clonic spasms occur. The seizure lasts only a few minutes, and is followed by great exhaustion.

Of these types the third is the most frequent, and after it the first, which, however, is becoming more rare. The second occurs but seldom.

The patient confirms, in so far as he is conscious of them, this account of his seizures.

Before entering the Infirmary he was under the care of Dr. McVail in the Royal Infirmary, to which he was admitted 20th October 1891. The house physician, Mr. Tod, states that he then complained, as now, of headache. He had had nine fits of an epileptic nature, and a tenth more cataleptic in character, a few days before admission. There was continuous and severe pain in the left frontal region, and occasional pain over the occiput. Both these points were tender to percussion, but not to pressure. He had constant tinnitus aurium, and complained of giddiness. On rising suddenly his sight became dim. The motions of the eyeballs were normal, and the pupils equal, reacting to light. The left eye was painful. Dr. Wolff examined the eyes on the 23rd October, and reported a left optic neuritis with retinal hæmorrhage. There was no paralysis. On the night of 27th October the patient had two semi-aphasic attacks, the first lasting half an hour, the second not quite so long. In neither did he lose consciousness, nor were there any other symptoms. He left on 30th October, refusing to continue the treatment adopted. The headache was gone, but he was otherwise *in statu quo*.

Examined on admission to the Western Infirmary, he is observed to have a somewhat dreamy expression. His replies to questions are slow and delayed, and suggest a lack of intelligence. His eyelids droop so much as almost to amount to ptosis, and he seems to be somewhat deaf. Physical examination is negative, save that there is some tenderness to percussion in the left temporal region. His bearing is very slovenly.

Dr. Thomas Reid reports on the eyes :—"In both eyes there is well-marked papillitis, with well-developed 'choked disc.' The optic nerve is prominent, to the extent of 1 mm. in the left eye, less so in the right. A considerable exudation covers the retinal vessels at their point of emergence, so that they seem to spring from near the margin of the disc. In the right eye the congestive condition predominates; whereas, in the left, the exudation has a whitish character, suggestive of absorptive change. The inflammatory condition is of a subacute character, showing some slow progress in affection, and probably depends on tumour or meningeal affection. . . . Hypermetropia to 3 D exists in both eyes."

Dr. Barr's report on the ears is as follows :—"Hearing by air conduction—right ear,  $\frac{2}{4}$  ; left ear,  $\frac{2}{4}$  . Left ear much more defective for speech and the tuning-fork than the right ear. Appearance of membranes fairly normal. Believes lesion to be mainly in nerve structures."

The diagnosis of intracranial syphilis was made, for the following reasons :—

1. The age of the patient, æt. 32, a time of life when syphilitic affections of the nervous system are common.

2. Fourteen years ago he contracted a sore on the penis while serving in Zululand with his regiment. It was, he states, of small size, and discharged somewhat, but was not very painful. It was followed, about a year afterwards, by buboes in both groins. That in the right was opened by the army surgeon; the other was never opened.

3. The pain in the hip was markedly worse at night. The frontal headache was also worse at night, and still is so.

4. Under the treatment in the Royal Infirmary (pil. hydrarg. and increasing doses of iodide) the headache disappeared.

On 3rd February 1893 he was put upon 30 grs. potass. brom. at night, and 10 grs. of potass. iodid. in the morning. On the 8th mercurial inunction was commenced. On the 11th the bromide and iodide were stopped, and, as the headaches continued, 15 grs. antipyrin was ordered when necessary. On 2nd March inunction was stopped, as it had caused a pustular eruption. The headache still persisted, but had considerably improved since admission. There was slight photophobia. No fits occurred during the patient's stay, although he twice had premonitions. He left on 15th March 1893.

He afterwards attended the Eye Infirmary for six weeks, but without improvement. During this time he never had a typical seizure, but on several occasions had minor attacks, consisting of the aura—a sensation of numbness extending from the fingers and toes up to the eyes—and temporary loss of speech. Since he left the Infirmary he had been unable to work, and the pains in the head became increasingly severe. The eyesight also continued to fail. At the beginning of May he had a major seizure, the only one of the kind since he was last in hospital.

He was readmitted on 17th May 1893, since which time the headache has been extending to the right side, and remains equally severe on the left. Sometimes, he says, he substitutes one word for another, and he has considerable difficulty in articulation. The substitution of wrong words is especially noticeable immediately after waking. He always knows perfectly what he wishes to say. The sight remains in much the same condition. Tinnitus is constantly present in the left ear. The frontal pain occasionally shoots through to the occiput, but there is now no permanent occipital pain, though the hip pain, which is distinctly nocturnal in type, still persists to a less degree than formerly. He does not sleep well. He has had several minor seizures since admission.

On 10th June an aphasic attack took place, beginning at 8 A.M. and lasting till noon next day. Patient states that the fits are less numerous since mercury was commenced on 3rd June; but on the 9th there was one attack of numbness, beginning in the foot and fingers and passing up to the eye on the right side. There was then no unconsciousness or aphasia. He is being treated by 30 grs. of potass. brom. at night, and a daily hypodermic injection of  $\frac{1}{8}$  gr. of hydrarg. perchlor.

Dr. Hinshelwood examined the eyes on 7th July, and reported that the discs are becoming much paler, especially the left. They have a filled-up appearance, and their edges are irregular and ill-defined. All the appearances are most marked in the left eye. Patient states that the headache and difficulty of speech are considerably diminished since readmission.

*15th August.*—Marked improvement in the headache and other symptoms, except the pain in the hip, which still persists. Yesterday a minor seizure occurred, lasting half an hour.

On the 14th and on the 20th August the patient had aphasic attacks, lasting an hour and twenty minutes respectively, with numbness passing from the toes and fingers up the right side of the face. The sight and the pain in the right hip are much as they were, but the headaches are very much improved, and also the general condition.

On the 23rd August he weighed 10 st.  $9\frac{3}{4}$  lb., as against 10 st. 7 lb. on 23rd May.

He left the Infirmary of his own accord on 3rd September 1893.

In this case the evidence of the syphilitic nature of the brain

affection is not overwhelming, and the results of antisymphilitic treatment are not brilliant. But for all that it is most probable that it had a syphilitic basis, while secondary non-syphilitic lesions may have resulted from the syphilitic affection, of the nature of inflammatory softening, etc., which, of course, could not be influenced by mercury or iodine. This result is far from uncommon, and hence the vital importance of making an accurate diagnosis, and of inaugurating energetic treatment at the earliest possible moment.

*CASE 61.—History of head injury; headaches; six weeks thereafter first epileptiform seizure, followed by other severe fits, of which three were confined to the right side of body; speech difficulties; paresis of right side of face, right arm, and leg; exaggeration of deep reflexes, and ankle clonus on both sides; tenderness behind left ear; traces of syphilis. Cure under potassium iodide and mercurial inunction.*—W. G., æt. 39, miner; was admitted to Ward 2 of Western Infirmary on 16th January 1896, complaining of pain in his head, associated with fits.

The family history, which was good, had no direct bearing on the case. In particular, there was no history of fits or other nervous affection.

In May 1895, while wrestling in a public-house, he fell, striking his head against the floor. The fall, which was followed by unconsciousness for fifteen minutes, seems clearly to have been due to the struggle, and not to a fit or loss of consciousness. Thereafter, until his first epileptiform seizure, he suffered greatly from headaches, which do not, however, appear to have been distinctly localised to any particular part of the head. Six weeks after this injury to his head he took his first fit, and between that and the time of his admission he had seven others, at intervals varying from three to four weeks. All the earlier seizures were preceded by a premonition sufficient to allow him to lie down, and after the first he completely lost the power of speech for three days. In the first two attacks the convulsions were general; but the three following were confined to the right side of the body (opposite side from injury), the arm, leg, and right side of the face being affected.

After these, the convulsive movements were not associated with any loss of consciousness, and were of a more local character, being limited to the arm, while there was only a numb feeling in the face. Up to admission he still suffered from pains in the head, but these were not specially on one side. For a couple of weeks before he came to hospital, he felt himself progressively losing power on the right side, especially in the right arm.

He had no loss of memory, but had difficulty in reading, for, though he could see the words and read them, he had difficulty in following the sense.



Occasionally, when he walked about, he suffered from giddiness.

On admission he had a dull, heavy expression, and an appearance of great stupidity. He spoke slowly and indistinctly, as if he had not only difficulty in getting words to express his ideas, but also in articulating them once they were found.

There was paresis of the right side of the face and of the right arm, but the leg was not affected. The paretic condition of the face is limited to its lower half, and is more pronounced than the paresis of the arm. There is some rigidity at the right elbow, and more marked stiffness at the right knee.

*Sensation.*—Tactile, normal. Pain and temperature senses both seem to be duller over the whole of the right side. All the deep reflexes are exaggerated, and ankle-clonus can be got on both sides; superficial reflexes normal. Special senses normal. There is very well-marked tenderness over a limited area situated above and behind the left ear.

These symptoms were suspected to be due to the formation of a gumma at the situation of the injury, for the following reasons:—

1. The headaches complained of occurred mostly at night.
2. There was extensive scarring of the penis, although by the patient attributed to the removal of gonorrhœal warts when in a military hospital in India.
3. Under the left knee there was a suspicious-looking, rounded, tissue-paper scar.
4. There were enlarged glands in the groins, in the left posterior triangle of the neck, and in the left arm.

The *treatment* consisted of mercurial inunction (1 drm. daily); and on 10th February iodide of potassium was added, at first in 10-gr. doses, gradually increasing to 1 drm. thrice daily. At first he became steadily worse, and by 11th February his face was practically devoid of expression, and he was quite unable to speak, although he seemed to hear and understand everything that was said to him. On the evening of that day he became quite rigid, and was unconscious for three or four hours, with slow pulse and almost stertorous breathing. On the following morning his condition was quite altered, and he was able to speak more distinctly than he had done since his admission to the hospital. The improvement continued, and by 24th February it was noted that he felt almost quite well, and physical examination failed to detect any abnormality, except that slight difficulty of articulation was still noticeable, and the tenderness over the left ear was not gone. He was last seen on 22nd March, by which time all symptoms had completely disappeared.



## PARALYSES AND PARESES (CEREBRAL).

CASE 62.—*Sudden loss of power on right side of body, but no loss of consciousness; right hemiplegia with late rigidity; traces of syphilis. Some improvement under mercurial ointment with faradisation.*—J. S., a sailor, æt. 30; was admitted into the Western Infirmary on 9th February 1876, suffering from hemiplegia and difficulty of articulation of sixteen months' duration.

His family history and, with one exception referred to later on, his previous personal history were satisfactory. About seventeen months before I saw him, the ship in which he sailed from St. John's in mid-winter became water-logged, and the crew were rescued by a passing steamer, after being exposed to cold and damp for two months, everything on board ship, including the bedding, being wet. One morning, about a month after this, while at his work at Dumbarton, but not exerting himself excessively, a prickling sensation was experienced all over the right side of the body, which was immediately followed by speechlessness and loss of power of that side, so that he fell to the ground, although he did not lose consciousness. About a month thereafter some improvement in these symptoms was manifest, and eight months after this occurrence he benefited considerably under treatment, including galvanism, in the Edinburgh Royal Infirmary. After leaving that institution, however, he became much worse, and stiffness and rigidity were added to his previous symptoms.

On examination, it was found that the hemiplegia was pronounced, and the rigidity well marked, especially in the arm and hand, the forearm being flexed and the fingers bent like the claws of a bird. Sensation was hardly at all interfered with, there being only slight defect in the sense of pain. The electrical reactions were normal. He had some difficulty of articulation, but no aphasia.

The lesion was suspected to be syphilitic for the following reasons:—

1. His age—only 30 years.
2. The absence of any other obvious cause for the symptoms.
3. Three or four years before he came to me, he contracted a gonorrhœa, accompanied by a sore on the glans penis, which soon healed. Since that time he had been frequently troubled with sore throat, and with rheumatism of the right shoulder, which was markedly nocturnal in character.

4. A large scar was discovered on the side of the penis, where the sore had been; the skin had a dirty, muddy look; and the inguinal and posterior cervical glands were enlarged.

*Treatment.*—This consisted of rubbing into the skin daily a drachm of mercurial ointment, along with faradisation. He was dismissed on 11th April considerably improved, but far from well. This is not to be

wondered at, seeing that there was evidence of secondary descending sclerosis of the cord.

CASE 63.—*Severe headache, nocturnal; left hemiplegia and anaesthesia; slight paresis of right side; history of numerous miscarriages. Great improvement under mixed treatment.*—Mrs. S., æt. 27, housewife, was admitted into the Western Infirmary on 7th April 1885, complaining of very severe headache, of paralysis of the left side, and of slight paresis of the right. She enjoyed good health until two years before admission, when, after the birth of her last child, she began to complain of weakness in “the small of the back,” and from that time she was never able to leave her bed for a whole day. Fourteen weeks before admission she vomited a large quantity of dark blood, and which recurred five weeks thereafter. It was unaccompanied by cough, but pain at the bottom of the sternum was complained of (ulceration of stomach?). The pain in the head, above referred to, and which was very severe, set in about nineteen weeks before I saw her. About a month before she was admitted, while lying in bed, she was seized with trembling of the whole body, and immediately thereafter she noticed that she had lost the power of the left side, and, three days before she came in, she experienced a slight loss of power on the right side.

On examination, it was found that she had complete paralysis of the left arm and partial paralysis of that side of the face. There was also anaesthesia of the whole of that side, but its extent could not be accurately ascertained, as her mental state was very defective, a condition which set in with the paralytic phenomena. She kept the right eye almost constantly closed, and the tongue, when protruded, deviated to the paralysed side. There was slight paresis of the right side.

*Evidences of syphilis.*—(1) The pain in the head was markedly nocturnal.

(2) Since the birth of her last child, two years ago, she has had five miscarriages, at the sixth to the eighth week of pregnancy.

*Treatment.*—On 8th April she began to take, three times a day, a mixture, each dose containing  $\frac{1}{16}$  gr. of perchloride of mercury and 10 grs. of the iodide of potassium, with the result that the headache and anaesthesia rapidly disappeared, the mental condition was restored, and the power of motion of the left side gradually increased, especially in the legs.

From 28th April, 1 drm. of Shoemaker’s mercurous oleate ointment was rubbed into the inside of the thighs daily.

On 14th July she received a mixture containing tincture of nux vomica and citrate of iron and quinine, and daily friction of the arm and leg was resorted to.

On 5th January 1886, when she was dismissed, the power of the

left leg was almost completely restored, but the arm was still a little weak.

CASE 64.—*Left hemicrania, nocturnal ; left hemiplegia with defective sensation on left side ; intercurrent attack of loss of consciousness with convulsive movements of the palsied limbs ; traces of syphilis. Great improvement under strong mercurial ointment.*—A man, æt. 29, a grinder by occupation ; was admitted into the Western Infirmary on 30th March 1882. For six months prior to this time he had been troubled with severe and steadily increasing headache, which was limited to the left side. Four days before he came in he was seized quite suddenly with paralysis of the left arm and leg, so that he was unable to walk, and the day following it was observed that he could not converse, answering “Eh” to every question that was put to him. The day before admission, however, this symptom had in a great measure disappeared, although, when he came into the hospital, he was in a somnolent condition, had a dazed and stupid look, and answered questions in a few words or sometimes not at all, while the information which he vouchsafed was afterwards found to be quite erroneous. For a day or two also before I saw him, the paralysis, which was quite complete at first (with the exception of the side of the face, which as usual was only partially affected), became much less pronounced, so that he could move the arm a little, and the leg with considerable freedom.

On the 18th April, about a fortnight after he came under observation, he became insensible, the loss of consciousness lasting for about a quarter of an hour, during which time there were convulsive movements of the palsied arm and leg. On recovering consciousness, it was found that the paralysis was greatly aggravated, he being quite unable to move the affected parts. The sensation, too, on this side was now found to be rather defective as regards touch, pain, and temperature. Thus, when slightly pricked with a needle, he thought that the hand was applied, and when hot and cold sponges were used, he could discriminate cold, but not heat.

The symptoms present in this case pointed to a gross lesion in the right side of the brain, involving the motor and, to a less extent, the sensory tract ; and, as regards its nature, the following considerations led me to suspect that it was of a syphilitic nature :—

1. The age of the patient (29), and the absence of any other apparent cause for the symptoms.
2. The hemicrania was markedly nocturnal in character.
3. The skin had an unhealthy, dirty, earthy tint.
4. The inguinal glands, and those on the inner side of the upper arms near the elbows, were enlarged.

5. A large white scar about the size of a sixpence, with dark edges, was discovered near the root of the penis, which, on inquiry, was admitted to have resulted from a venereal sore five years before.

*Treatment* consisted in rubbing a drachm of strong mercurial ointment into the skin daily. It was commenced on 2nd April, and was stopped on 2nd June, but from the 10th to the 20th April it was omitted through inadvertence.

On 23rd June, when he left the hospital, he was a very different man. The intelligence, which was at first so defective, was perfect in every respect, the nocturnal hemierania had long disappeared, the paralysis of the arm was slight, as he could move it freely in all directions, and the dynamometer, on which at first the hand made no impression, registered 35 lb. The palsy of the leg was slight, although rather more pronounced than that of the arm, and he was a little lame and rather stiff. This last symptom, taken along with the existence of some tremor when the limb was manipulated, and exaggeration of the patellar tendon reflex (ankle-clonus was not present), rendered it probable that secondary sclerosis of the left pyramidal tract of the cord had set in. As this lesion, though secondary to the lesion of the brain, is of a non-syphilitic character, it could not be influenced by antisyphilitic treatment.

CASE 55.—*Hemiplegia of right side ; anæsthesia of left ; unilateral sweating of that side of face ; some rigidity and exaggeration of knee-jerks on both sides ; traces of syphilis. Great improvement under strong mercurial ointment.*—James K., æt. 49 ; was admitted into the Western Infirmary on 11th January 1882. He seems to have enjoyed good health until December 1867, when he had a severe attack of rheumatic fever of seven weeks' duration, but from which he made a good recovery.

He remained well for about eight years, and then (1875) began to suffer from giddiness, with a sense of fulness in the neck, which was accompanied by twitching and a "clicking sound" at the nape, especially on stooping, raising heavy weights, or otherwise exerting himself. This continued until the middle of the following year (1876), when one evening, returning from work and ascending a stair, he suddenly experienced "a feeling of weakness," and, supposing that it would soon pass off, he sat down, but on attempting to rise again he was unable to do so. He thinks that he was unconscious, or nearly so, for a little, and, after being carried into his house, it was found that he had paralysis of both arms and legs, more particularly on the right side. The right side of the face, too, was paralysed, though not completely. For a short time afterwards he sometimes saw things double. In a few weeks he recovered the power of the left arm and leg, and the palsy on the right side improved, but never disappeared.



In the winter of 1880 he had a suppurative inflammation, with ulceration of the skin, on the inner side of the left knee, which was followed by permanent cicatrices.

About the beginning of December 1881, after a wetting, and while straining at stool, he experienced a chilly feeling all over the body, which was immediately followed by an increase of the paralysis of the right side, and by pains in the shoulder and knee-joints.

After the first seizure, well-marked rigidity in the right arm and leg, and to a less extent in the left knee, gradually supervened. After a time this slowly diminished, but became more pronounced after the second attack of paralysis. Ever since the first attack he has experienced some numbness and defect of sensation on the left side of the body, which was also improving slowly until the second attack, when it became more decided. For a considerable time, too (he could not say how long, but for three years at all events) he had a tendency to sweating on the left side of the face, which was sometimes very marked, and accompanied by flushing and venous distension. The family history was in every way satisfactory.

On examining the patient, it was found that there was partial paralysis of the right side of the body and face. The dynamometer registered 35 lb. with the right hand, and 140 lb. with the left. He could not close the right eye firmly when the left was kept open, but could do so quite well when they were closed simultaneously. There was well-marked rigidity of the arm and leg, with exaggerated knee-jerk, but ankle-clonus could not be elicited. On the left side there was slight rigidity of the knee, and slight exaggeration of the patellar tendon reflex, though hardly any observable paralysis on that side. But, on testing the sensation on this side, it was found to be very defective as regards touch, pain, and temperature, the anæsthesia diminishing, however, from below upwards, although quite distinct on the face. The side of the tongue was not involved, nor was there any trace of colour-blindness. The only other feature worthy of note was unilateral sweating on the left side of the face. This was not constant, but was only observed when he exerted himself, or when he was excited; at these times the parts were distinctly congested and the veins prominent.

As regards the seat of the disease, the view expressed at a meeting of the Glasgow Pathological and Clinical Society, where the patient was shown, was that a single lesion at the base of the brain, in the pons, might account for the symptoms. With regard to the sweating, the pons Varolii had a good deal to do in presiding over vasomotor action, although, from the history of pain at the nape of the neck, there might quite well have been some implication of the cervical sympathetic (Dr. Alexander Robertson).

As regards the nature of the disease, the attack of rheumatism



naturally led to a suspicion of embolism, the result of rheumatic endocarditis; but there was no evidence whatever of valvular mischief, nor were there any symptoms of embolism of other organs, spleen, kidneys, etc. On the other hand, the syphilitic nature of the trouble was suspected, for the following reasons:—

1. Twenty-four years ago he had a single hard sore on the penis, close to the frænum, the cicatrix of which was quite distinct. It was followed, he told us, by well-marked constitutional symptoms.

2. The skin had a dirty, earthy, muddy tint.

3. The inguinal glands, and those just above the elbow on the inner side of the arm, were enlarged.

4. A good many scars were visible on various parts of the trunk, and more particularly on the inner side of the left knee, which were more or less rounded, and, in the latter situation, their edges were dark in tint.

The *treatment* consisted of mercurial inunction (1 drm. of strong mercurial ointment being rubbed in daily). This was commenced upon 29th January 1882, and was continued for ten days, when it was suspended, owing to the gums being slightly affected. On 10th February, three days after the mercurial treatment was stopped, an examination of the patient was made. He told us that the fulness and discomfort in the head, of which he had complained, had entirely disappeared, and that altogether he felt a different man. The unilateral sweating, though still present on excitement, was a good deal less pronounced; the anaesthesia, tested as before, was found to be entirely gone; and the paralysis was very greatly improved, as he had much more power in the leg, and could walk a great deal better; while the dynamometer now registered 70 lb. with the right hand (instead of 35 lb. before the treatment was commenced). And, what is very remarkable—and the explanation of which it is not easy to make out—is, that there was a very considerable diminution in the rigidity, although the patellar tendon reflexes were still exaggerated. He was ordered to continue the treatment, but he insisted upon leaving the hospital, and I have not since heard of him.

CASE 66.—*Loss of consciousness, with subsequent left paresis and anaesthesia; difficulty of articulation; paralysis of the right third and sixth nerves; right hemicrania, nocturnal; scar on penis. Great improvement under mercurous oleate ointment.*—W. S., æt. 30, cooper, came into the Western Infirmary on 10th August 1886. Three days before admission (7th August), when at Rothesay on a holiday, he retired to bed in his usual health. Next morning he was found by his landlady in a semi-conscious state. It was some time before he completely recovered his senses, and then it was found that he was partially paralysed on the left side, and that he had considerable difficulty of articulation. On

returning from Rothesay on the day of his admission, and while laughing heartily at what a fellow-passenger had been telling him, he became suddenly unconscious, and remained so for some time. On coming to himself, he found himself lying upon his back surrounded by some of the passengers.

On entering the Infirmary, he complained of severe pain in the right temporal and occipital regions, and of a "prickling" sensation in the left leg, and, to a less extent, in the arm.

There was partial paralysis of the left side, and anæsthesia so complete that he could not feel the prick of a needle, or distinguish heat from cold.

On the right side, too, there was complete paralysis of the third nerve, and partial paralysis of the sixth. Vision was double to the right of the middle line. His speech was much affected owing to paralysis of the muscles of articulation. He was also deaf, although this was probably a condition of old standing. Dr. Barr examined the ears, and the following is his report:—"In the right ear there is a cicatrix with adhesions in the posterior part of the membrane (due to old suppurative disease, from a traumatic cause). On the left side there is some opacity of the membrane. . . . On both sides the nervous structures are the parts essentially affected."

Some time after his admission the following new symptoms gradually supervened:—Marked trembling of the left leg on exertion; ankle-clonus pronounced; knee-jerk markedly exaggerated; tendon reflexes of left arm greatly increased. On waking at night he often found his left hand firmly clenched.

These symptoms pointed to a gross lesion implicating the right crus cerebri, with consecutive descending degeneration of the cord, and they were believed to have a syphilitic basis, for the following reasons:—

1. The age of the patient,—he was only 30 years old.
2. The absence of evidence of any other cause.
3. The pain in the head was markedly nocturnal.
4. Syphilis is the most common cause of paralysis of the third and sixth nerves.
5. He at first denied having ever had any form of venereal disease, but a very distinct scar was found upon the glans penis, which he asserted was the result of a burn from a red-hot iron, but afterwards admitted to be due to a venereal sore.

*Treatment.*—Shoemaker's mercurous oleate ointment, to the extent of a drachm, was rubbed into the skin daily, but with no good effect, so that ordinary mercurial ointment was substituted for three weeks before his dismissal, which was necessitated by bad conduct. By this time the anæsthesia had disappeared, the pain in the head was much relieved, and he could walk better.

CASE 67.—*Nocturnal headache ; giddiness ; some difficulty of speech ; general paresis ; traces of syphilis. Cure under potassium iodide.*—John M., æt. 45, an old soldier ; was admitted into the Western Infirmary on 16th October 1885, complaining of general weakness and loss of power of three weeks' duration, combined with headache and giddiness, and pain over the left shin.

At that time, without apparent cause, he began to feel weak and was easily fatigued ; the weakness gradually increased until he could only walk with support, and had at last to take to his bed. He felt giddy, especially if he looked upwards, and very severe headache, and pain over the left shin set in. His speech also was affected, in so far as it was slow and hesitating, and he had great difficulty in pronouncing words. There was no defect of sensation, the paralysis was generalised but incomplete, and the reflexes normal, with the exception of the knee-jerks, which were slightly exaggerated.

I suspected the syphilitic basis of these symptoms for the following reasons :—

1. No other probable cause could be made out.
2. At the age of 20 he had a single indurated sore, followed by enlargement of the inguinal glands, and a coppery eruption all over the body.
3. There was a small cicatrix at the base of the glans penis, and the groin glands were distinctly enlarged.
4. The skin had a dirty, sallow tint, and numerous small circular cicatrices were discovered over the upper part of the body.
5. There was well-marked thickening over the left tibia, and the shin pain and headache were markedly nocturnal in character.

*Treatment* consisted of scruple doses of iodide of potassium, thrice daily.

Within a week of the commencement of this medicine the headache and shin pain had entirely disappeared, the paresis rapidly diminished, and on the 20th November (after a month's treatment) he left the Infirmary feeling quite well in every respect.

CASE 68.—*Intermittent attacks of headache ; numbness and paresis of left arm and leg ; severe attacks of vomiting ; twitchings of left hand and left side of face ; diplopia ; paresis of both sixth nerves ; double optic neuritis ; history of miscarriages and stillborn children. Rapid improvement under potassium iodide and mercurial inunction.*—Mrs. C., æt. 37 ; was admitted to the Western Infirmary on 28th September 1896, complaining of pain in the head, vomiting, and dimness of vision, of four months' duration.

The family history was good, except for the fact that her mother died at 38, of heart disease and dropsy. The patient herself had had

two attacks of rheumatic fever, six years and one year ago, each lasting about two months. She was otherwise healthy till the onset of her present illness.

Four months ago she suffered for a day or two from pain in the ball of each eye, and immediately afterwards from a similar but more severe pain in the vertex and temples, worst on the right side, and intermittent. The pain did not present nocturnal exacerbations, but it has persisted to the present time, the attacks becoming more frequent and severe. During the more aggravated attacks, the left arm became numb and powerless, regaining sensation and movement, though never completely, as they passed off. It has been affected in that way dozens of times during the past four months, though of late only the fingers have felt noticeably weaker.

During these months she has also experienced a gradually increasing dimness of vision. Three months ago she began to have "sick turns," lasting for a day or two. The sickness and vomiting were severe, and had no special reference to the taking of food. For the last two or three months, when the pain was severe, twitchings of the left hand have occurred, and simultaneous twitchings of the lower part of the left side of the face. A week before admission she noticed the left leg to be numb, and that it trailed in walking. On a few occasions, dating from one month ago, she "felt the right eye turning inwards," and then suffered from diplopia. This coincided with severe pain in the head.

Her general health, she says, has been unimpaired, although she has lost about 2 stones in weight. There has been no vesical or rectal trouble. On admission she complained of severe pain over the vertex, and especially on the right side, where there was distinct tenderness to percussion in the vicinity of the fissure of Rolando. There was marked dimness of vision, and paresis of both sixth nerves, especially the right. A report on the condition of the fundus, sent with her by Dr. Freeland Fergus, stated that there was marked double optic neuritis, the "choked disc" appearance being typically present. The attacks of vomiting from which she suffered were cerebral in nature, being in no way affected by the taking of food. Twitchings of the left hand and the lower part of the left side of the face, as described above, were noticed. There was paresis of the left arm, the dynamometer registering only 10 kilos., while in the right hand it registered 30. The left leg, too, was weaker than the right. A very considerable degree of anæsthesia, both for tactile sensations and those of temperature, was present in the left forearm and hand. There was no evidence of descending sclerosis, such as rigidity, tremor, or spasm, though on the right side the reflexes were slightly increased.

These symptoms pointed to a lesion in the cortex of the brain, upon

the right side, implicating the centres for the face and arm, and impinging upon that for the leg. With regard to its nature, a hæmorrhage was probably excluded by the absence of any evidence of atheroma, by the comparative youth of the patient, and by the absence of any affection of the kidneys. The history of rheumatic fever suggested embolism, but the lesion was on the right side (and not, as usual, on the left), while the cardiac sounds were perfectly pure.

It was suspected to be syphilitic for the following reasons:—

1. The age of the patient (37), an age at which syphilitic nervous lesions are common.

2. The somewhat earthy pallor which she presented on admission, though this was not so marked as is often the case.

3. The history of her various pregnancies. She was married seventeen years ago, and has had a family of six.

Her first child was born sixteen years ago, and when two months old had an eruption about the buttocks, genitals, and angles of the mouth. It suffered also from "snuffles" up to the age of 9 months. The girl is now alive and healthy.

The second was apparently healthy, but died at the age of 9 months from bronchitis and a "fit."

The third was still-born at full term; the fourth and fifth pregnancies resulted in miscarriages at the fifth month; and the last in a still-birth at full term six years ago.

No other evidences of syphilis, such as cutaneous rash, alopecia, or nocturnal pains, were to be made out.

She was put upon antisyphilitic treatment upon 29th September, and improved very rapidly. The following medicaments were ordered:—Inunction of 1 drm. of mercurial ointment every day, and 10 grs. of potassium iodide, which on 3rd October was increased to 20 grs. thrice daily.

On 23rd October, before leaving to continue the treatment at home, the following was her condition:—The headaches had completely disappeared, and with them the tenderness over the right side of the vertex. The attacks of vomiting had ceased for about three weeks, and the twitchings of the face and hand were no longer present. The dimness of vision was less, there was no diplopia, and the paresis of the sixth nerves was gone. After ophthalmoscopic examination, Dr. Hinshelwood reported "that the appearance in both eyes is that of an optic neuritis of intense degree, which is beginning to subside in the right." The power had returned to the left arm, the dynamometer registering 30 kilos., and the remaining anæsthesia was extremely slight.



## ATTACKS OF TEMPORARY APHASIA.

CASE 69.—*Attacks of temporary aphasia with confusion of mind ; pain in the back of the head, nocturnal ; history of chancre and cicatrices. Cure under mercurous oleate ointment.*—A gentleman, æt. 38, consulted me on 31st August 1886. "Between the 3rd and 5th of August," wrote Dr. Archibald Brown of Mount Florida, who conducted the treatment, "Mr. A. experienced the first symptoms of his illness, a slight difficulty in pronouncing certain words. On the 6th August, on landing at Greenock after a sail on the river, he found himself unable to speak ; but on arriving at Glasgow the power of speech had returned. For about ten days afterwards he felt an occasional numbness of the left cheek and point of the tongue, and experienced a distinctly metallic taste. On the evening of the 16th of August he suddenly suffered from a choking sensation, followed by contraction of the left side of the face, and loss of speech. He was quite intelligent at the time, but felt some confusion of mind. The power of speech returned in about an hour, but from the 17th to the 31st he became speechless four or five times. During all this time he was unable to make the simplest calculations, and could not spell words correctly, with the single exception of his own name. On the advice of the late Dr. Moyes of Largs, he took iodide of potassium for a week, but derived no benefit from its use."

When I saw him, on the 31st of August, there was a little permanent aphasia ; he could not write very accurately (*e.g.* when I asked him to write Fairlie, he wrote Fairlia, but he knew that he was making a mistake), and he was suffering from severe pain, chiefly in the back of the head, which set in some time after the onset of the aphasia.

I suspected that these symptoms had a syphilitic basis, on the following grounds :—

1. Thirteen years before he had a solitary chancre on the penis.
2. There was an ulcerated patch on one leg, the edges of which were perpendicular ; it was circular in shape, and the skin around had a coppery colour.
3. There were coppery stains on the legs and on one arm.
4. The pain in the head was nocturnal in character.

*Treatment* consisted of the inunction of 1 drin. of Shoemaker's mercurous oleate ointment daily.

On 4th September I saw him with Dr. Brown. For the first two nights the pain in the head was worse, but for two nights before his visit it was much relieved.

"In a few days," wrote Dr. Brown, "after beginning its use (mercurous oleate ointment) under my observation, improvement in pronunciation and power of speaking set in. In three weeks all the symptoms had disappeared."

## HEAD SYMPTOMS DURING SECONDARY ERUPTION.

CASE 70.—*Copious syphilitic eruption; headache and gradually increasing stupor, ending in coma and death. Post-mortem examination revealed considerable subdural hæmorrhage.*—J. D., æt. 39, laundress, admitted to Ward 7 of Western Infirmary, 30th April 1892, in a torpid condition.

The patient's father died at the age of 64, her mother at 54, both of "paralysis." She was one of a family of seven. Of the other six one sister died at the age of 39 of "internal cancer"; the remaining five are alive and well.

The history was obtained from a sister, who states that patient has all her life been very healthy, except that seven years ago she had scarlet fever, for which she was eleven weeks in hospital.

About eleven weeks ago, she complained of pain in her back and head, and a doctor was called in, who diagnosed influenza. From this she recovered in about a week.

Eight weeks ago the pain in her back and head returned, and rendered her unable to get about. Her sister does not know whether or not it was chiefly nocturnal. Three weeks afterwards a rash came out all over her body, and has persisted since then. A fortnight ago she fell into a state of stupor, in which she has continued since.

On examination, the patient is discovered to be in a state of stupor, from which she can be roused when she is loudly spoken to. If told in a loud voice to put out her tongue, she does so, and keeps it out until told to put it in again. There is no paralysis. The pupils are contracted, and there is a slight conjunctivitis in both eyes.

The whole body is covered with a copious dusky papular rash, most abundant upon the face, arms, and loins, where it is, in some places, almost confluent; less abundant upon the chest, abdomen, and extensor aspects of the thighs, and existing, though scantily, both upon the palms and soles. The individual papules are mostly of large size, circular, dusky red, and occasionally distinctly coppery in colour. Many of them are surrounded at their bases by a collar of desquamation. They are flat-topped, only slightly raised, and unaccompanied by itching or irritation of any kind. Some are covered by small whitish scales, and a few are hæmorrhagic. The eruption is manifestly syphilitic, resulting from recent infection.

On admission, her head was shaved and an ice-bag applied; 5 grs. of calomel was administered, and followed by a seidlitz powder. On the 1st May frequent feeding was begun, and  $\frac{1}{8}$  gr. of perchloride of mercury injected subcutaneously night and morning.

The stupor gradually deepened, and finally passed into coma. The patient died on the morning of the 5th of May.

On post-mortem examination, a considerable subdural hæmorrhage was found, the blood covering, in a thin layer, nearly the whole of the convexity of the right hemisphere, and extending from near the base to very near the vertex. There was no other obvious lesion in the brain, nor in any of the other organs except the left lung, where a capillary bronchitis, accompanied by œdema, was found in the lower lobe.

## B. SPINAL CASES.

### SYMPTOMS RESEMBLING THOSE OF LOCOMOTOR ATAXIA.

CASE 71.—*Lightning pains in lower limbs ; girdle sensation ; spinal pains, and tenderness on pressure over lower dorsal and lumbar vertebræ ; paraplegia ; abolition of superficial and deep reflexes ; loss of sensation, except of head and neck ; contraction of visual fields and central scotoma ; suspicious history. Great improvement under potassium iodide.*—Mrs. F., æt. 39, admitted into the Western Infirmary on 5th December 1887. Her father died of some chest affection at the age of 67, and her mother of phthisis at 50. She is one of a family of ten, all of whom are dead with the exception of two, but the causes of death of only two can be ascertained, namely, phthisis. There is no history of any tendency to nervous affections in the family.

She has always been temperate in her habits, and, with one exception, to be referred to later on, enjoyed uniform good health, until two years before admission. At that time, after having suffered for three months from persistent, painless diarrhœa, she began to complain of numbness and defect of sensation in the left leg, for which she was treated in the City Hospital, for a period of five months, without material benefit. During her stay there she had retention of urine on several occasions, but was relieved, without the use of the catheter, by the application of fomentations. Five months before I saw her, the right leg became similarly affected, coincident with which she lost desire for sexual intercourse, and began to experience a feeling as if a cord was tied tightly round her waist (girdle sensation). Since the commencement of her illness, her bowels, which were formerly regular, became very costive ; but latterly, on several occasions, she had diarrhœa, at which times she was quite unable to retain her motions.

Within the last three months she had frequent attacks, lasting for a day or two, of lightning pains ; these usually followed the course of the sciatic nerves, but sometimes also shot down the arms. She now complains of pain and of tenderness on pressure in the spine, over the fourth, fifth, and sixth dorsal, and over the twelfth dorsal and first lumbar vertebræ. For at least a year her eyesight has been failing, and

now she can only see to read pretty large type. She has no fever, and all the other organs of the body seem to be healthy.

On examination, it was found that the left (first affected) leg was somewhat more wasted than the right, measuring only 11 in., as compared with 12 in. on the right side, at its greatest circumference. Sensation was completely lost all over the body, with the exception of the head and neck; the reflexes, superficial and deep, were totally abolished, and there was no response to either form of electricity.

The following are the reports on the eye by Drs. Reid and Wallace :—

“Both nerves are pale. Retinal vessels congested. Nothing pathognomonic of disease. Vision of right eye normal; that of left rather defective, reduced about one-fourth. With glasses can see large type with left eye” (Dr. Reid). “Both visual fields, as taken by the perimeter, are very much contracted, especially that for the left eye, which is irregular in outline, and not concentric like the right. There is a central scotoma in both, in extent nearly proportionate to the area of the visual field in each eye” (see Fig. 9, diagrams A and B).

On 25th December 1887 she was found to be exactly in the same state as on admission.

On 6th January 1888 it was noticed that the disease had further progressed. The girdle sensation was felt higher up in the chest, and the anæsthesia extended up to the lower half of the face.

On 12th January the girdle sensation was felt on a level with the clavicles, and the anæsthesia extended as far as the temples.

On 17th January the anæsthesia was universal, and dysphagia was so great that she was nearly suffocated, and was only saved by the removal from the top of the larynx of a piece of meat which had lodged there.

At this time she was shown to the class, and her condition, shortly, was as follows :—Lightning pains some time gone, after two powders (15 grs.) of antipyrin; paraplegia absolute, except that she could move the toes of the right foot slightly; anæsthesia universal and complete; unable to tie a knot, to lift a pin, or to read small print; girdle sensation on a level with clavicles; reflexes absent; sexual desire gone; micturition and defæcation difficult; dysphagia very marked, so much so that she was nourished for the most part per rectum.

The family history in this case might have led to the suspicion that the spinal disease was of a strumous character; but I am inclined to believe that it was syphilitic, for the following reasons :—

1. She had a pallid and earthy complexion.
2. Before and for three years after her marriage (at the age of 23) she enjoyed exceptionally good health. She then became pregnant, and had an abortion, without any obvious cause, at the fourth month, and was much weakened by hæmorrhage. Two months after this she

again became pregnant, and again aborted at the fourth month. Twelve months after this she was delivered of a healthy child at the full time. It is further worthy of note that her husband, being a soldier, was separated from her, and returned home shortly before the first pregnancy set in, although, as far as she knew, he was in good health.

3. During the whole period of the first pregnancy she had very severe headache, which was nocturnal in character.

She was therefore put upon iodide of potassium (10 grs. thrice daily) on 17th January.

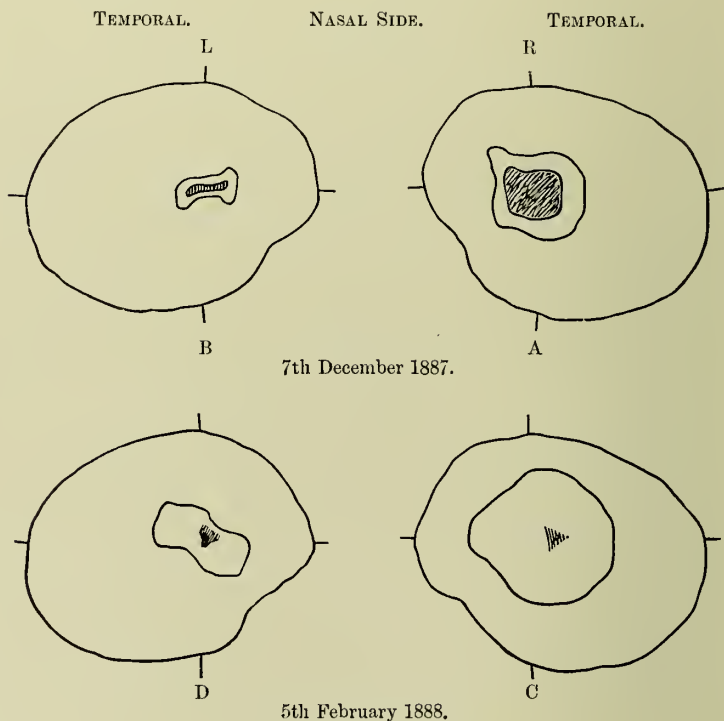


FIG. 9.—Visual fields in Dr. Anderson's case.

The accompanying diagrams show the fields of vision, A and B having been taken on 7th December 1887, and C and D on 5th February 1888. The outer line shows the shape and extent of the normal field; the inner line gives the proportional size and shape of the visual field in this case. The shaded portions in the centre mark the positions of a central scotoma. The vertical and horizontal lines would, if drawn so as to intersect, cut one another at the central point of the field, *i.e.* at that point which corresponds to the macula. The blind spot, indicating the situation of the optic nerve, lies slightly to the temporal side of the field, corresponding to the nasal side of the retina. The fields are greatly contracted, especially those of the left eye, although a decided improvement is evident in those of the later date. A central scotoma for all colours is present in A, B, and D, while the small shaded area in C is a scotoma for red and green, but not for white. It corresponds exactly to the position of the blind spot.—W. Wallace.



On 21st January, four days after the treatment was commenced, she was again examined, and was found to be much improved. She looked better and felt less languid. Power was returning to the lower extremities, especially to the right limb. The anæsthesia was nearly gone from the head, neck, and trunk as far as the waist, and from the upper arms. The dysphagia was now quite a subordinate symptom, and the girdle sensation had sunk to the level of the breasts. She could now tie a knot and lift a pin. It is worth noting also, that, coincident with the diminution of the anæsthesia, the tenderness over the fourth, fifth, and sixth dorsal spines reappeared.

She continued steadily to improve, and when she was again shown to the class on 6th February, twenty days after the iodide was begun, the following was her condition :—

Her general health was much improved, and she had a much more healthy colour. She could move her legs with freedom in bed, and could walk with slight assistance. The anæsthesia was quite gone, except from the feet, where, especially on the soles, the sensation was much blunted. The dysphagia and the girdle sensation had also disappeared, as well as the spinal tenderness. She could now read small print, and the improvement in the eyesight is further shown by the diagrams C and D. Her bowels were now regular, and urination was much more natural, but the knee-jerks were still absent. Shortly after this she left the Infirmary.

CASE 72.—*Lightning pains and anomalous sensations in lower limbs ; paresis of bladder and rectum ; ataxia and perversion of sensation in lower limbs ; absence of knee-jerks ; history of chancre and subsequent symptoms. Great improvement under mercurial inunction.*—Hugh C., æt. 49, coachman, came under my care on 16th March 1888.

His father and mother died at the age of 82 and 73 respectively. He is one of a family of three sons, and both of his brothers died at the age of 27,—one of phthisis, and the other as the result of an injury to the spine. He himself was married at the age of 19, and his wife has had a large family, of which more hereafter.

With one exception, to be mentioned later on, he enjoyed uniformly good health, and was always temperate in his habits.

A fortnight before admission, he experienced uneasiness in the gastro-hepatic region after food, but without sickness or vomiting. Two or three days thereafter, a dose of castor-oil removed it entirely ; but the day before this he began to complain of pains shooting down the legs along the course of the sciatic nerves (starting as if from the stomach). These pains, which were very severe, occurred in paroxysms, consisting of two or three “electric shocks” occurring in rapid succession, with intervals of about a minute between each series, and were supposed to

be of a rheumatic nature. They were soon followed by burning pain and "prinkling" at the points of the toes, the heels, and in both calves. After the lightning pains had continued for twenty-four hours, he got out of bed, and was surprised to find that he could not walk steadily, and that "his knees gave way below him." He also noticed that the wooden floor felt soft, and, to use his own words, "like a piece of velvet or Scotch carpet."

Seven days before admission his water stopped whilst he was making it, and it was only after a prolonged effort and many trials that he succeeded in emptying his bladder. Since then he has had a desire to micturate very frequently, but only a little urine came away at a time, and after prolonged straining. Coincident with his bladder troubles he noticed that his bowels, which had previously been very regular, became very costive, and he experienced great difficulty in emptying the rectum. After an aperient he had diarrhoea, had the utmost difficulty in retaining the motions, and on one occasion had an involuntary evacuation. He had now, too, lost all inclination for sexual intercourse.

On examination, it was found that ataxy was very pronounced. He was only able to walk with support, and could not walk backwards, or along a narrow plank, or stand with his feet together and his eyes shut, even for a moment. Anæsthesia was absent, but sensation was much perverted. The ground felt soft and warm, and the roots of the toes and heels, and to a less extent the legs as far as the knees, were the seats of a "numb, prinkling" sensation. The neuralgic pains along the course of the sciatic nerves continued; the knee-jerks were absent, but the cremasteric reflexes were very active. The bladder and bowel troubles persisted, but there was no girdle sensation, and examination of the spine was negative.

His medical attendant wrote that the case had puzzled him very much, and that his symptoms had defied all treatment. I was led, however, to suspect that they had a syphilitic basis, for the following reasons:—

1. Sixteen years ago he contracted a hard chancre on the glans penis, which was cut out, the scar of which still remains. Previous to this his wife had six healthy children, and she had a seventh shortly after, and while he was still away from her. But her next pregnancy resulted in a still-born child. She then had two apparently healthy children, and lastly a miscarriage at the sixth month.

2. The neuralgic pain above mentioned was very markedly nocturnal in character; indeed, it disappeared entirely in the daytime.

3. No other probable cause for the symptoms could be made out.

*Treatment* was commenced on 19th March, three days after his admission, during which time his symptoms were on the increase, and consisted of mercurial inunction (1 drm. of mercurial ointment being

rubbed in daily), and the neuralgic pain was temporarily arrested by 15-gr. doses of antipyrin.

On 25th March, six days after the treatment was commenced, he was examined in presence of the class, and was found to be greatly improved. He could not only walk without support, but could traverse a single plank, and move backwards fairly well, while he could stand unsupported with his feet together and his eyes shut. The numb feeling, though greatly mitigated, was not quite gone, and he felt the floor both hard and cold. The neuralgic pain was very trifling, but the antipyrin undoubtedly contributed to this. He had now much less difficulty with his water, and his bowels were quite regular. The knee-jerks remained, however, in abeyance. I lost sight of him after this time, but the improvement in a few days was so marked as to leave no doubt of the accuracy of the diagnosis.

CASE 73—*Ataxia of lower limbs with numbness; numbness of the arms and feeling of band round the waist; absence of knee-jerks; previous syphilitic symptoms. Great improvement under mercurial ointment and galvanism.*—J. C. H., æt. 43, consulted me on 3rd February 1885. His symptoms only dated back four weeks. These consisted of well-marked staggering gait, with numbness of the lower extremities, and inability to feel the ground properly when walking. For a week, too, he had experienced numbness of the arms (especially on the right side) as far up as the elbows, and limited to the region of distribution of the ulnar nerves (the thumbs, index, and the corresponding side of the middle fingers escaping). His knees felt slightly stiff, and he suffered from a feeling of tightness round the stomach, with much flatulence, especially after food; and at times he had a feeling of a band across the abdomen. The knee-jerks were entirely absent. He attributed his symptoms to going out after sitting in a hot office. But, ten years before I saw him, he had a single chancre on the penis, followed by blotches on the skin and pains in the bones, which, however, did not trouble him long, and for which he was only treated for a short time.

Treatment was commenced on 4th February, 1 drm. of mercurial ointment being rubbed into the skin daily. On the 7th the numbness of the legs was gone, and that of the arms a little diminished. On this day the dose of the ointment was doubled, and he was directed to apply galvanism to the spine for ten minutes daily (ten cells of a Leclanché battery).

On the 19th the following note was taken:—"The numbness in the arms has steadily diminished, and he now walks well. After the use of 2 drms. of mercurial ointment for three days, it was omitted for three days owing to slight salivation, and then only 1 drm. was employed." The ointment was now increased to 1½ drms.

At the end of March he went for a change to Jersey, and although the weather was bitterly cold he steadily improved. On his return on 28th April he reported that for some time he had felt quite well, with the exception of a little remaining numbness of the right arm.

### PARAPLEGIÆ.

CASE 74.—*Paresis of lower extremities, with tremor on exertion; rigidity; spasms; exaggerated reflexes with ankle-clonus; history of syphilis. Great improvement under mercurial inunction.*—Jas. H., æt. 33, cabinetmaker; came under observation on 7th September 1881, suffering from an affection of the lower extremities of about eight months' duration.

During the previous winter he complained of numbness and coldness of the feet, and even upon admission the coldness was frequently complained of, although the numbness, which was a striking symptom at the time mentioned, had disappeared. About six or seven months before I saw him, he began to notice that, on exertion, his lower extremities very soon felt sore, weak, and wearied; and about the same time he observed that, if he sat long in one posture, he felt so stiff that he had to walk thirty or forty yards before the legs became supple again. Soon after this it was noted that, when sitting in the open air and getting up suddenly, the muscles in the inner aspects of the thighs were in a state of cramp, so much so that he could not walk, or even straighten himself, until it passed off. For many years he had been troubled with constipation, which since the commencement of his present illness has been decidedly more pronounced; and about four months ago he observed a gradually progressive failure of sexual power, until it became almost entirely lost.

(For some months he had had urinary troubles, which, on admission, were found to be due to a slight stricture of the urethra, which was soon rectified.)

The weakness in the lower extremities slowly increased, especially as regards the right limb, and they were often the seat of tremors, especially on exertion. The stiffness and rigidity of the limbs also steadily advanced, and for several months he had been much troubled with the cramps, which were at times so excessive that his legs were violently drawn up.

His family history was unimportant, and, with an exception afterwards referred to, he had hitherto enjoyed good health, although long subject to acne of the face.

On admission the following was the state of matters:—There was no ataxy, but the lower extremities were very weak, and, when he exerted himself, the seat of tremors.



There was no wasting of the limbs, but well-marked rigidity and occasional violent spasms were complained of. The electric contractility and reflex excitability were retained. The knee-jerks were much exaggerated, and ankle-clonus was pronounced.

The syphilitic basis of these symptoms was suspected for the following reasons:—

1. He had venereal disease three times. On the first two occasions—fourteen and eight years before—he had soft sores, which were treated locally, and were not followed by constitutional symptoms. On the last occasion, fifteen months before I saw him, he had a hard sore on the penis, succeeded by an eruption all over the body, and ulceration of the throat and lips.

2. Some brown discolorations were found, chiefly on the legs where the eruption had been, the inguinal and neck glands were enlarged, and the hair was thin and came away readily.

3. The age of the patient was 33.

4. The absence of any other probable cause.

*Treatment* consisted of mercurial inunction, which was commenced on 4th November, after a course for five weeks of very small doses of perchloride of mercury ( $\frac{1}{12}$  gr.) and iodide of potassium (5 grs.) thrice daily. Even before the inunction was commenced, he stated that he thought he walked much better.

On 26th November the following report was taken:—"Patient continues steadily to improve. He walks much better, has a better grip of the floor, and the rigidity of the left leg has disappeared. The spasms which he used to have when sitting up have quite disappeared, although he occasionally has them after going to bed."

When he left the Infirmary on 6th January 1882, the rigidity had nearly disappeared, and he was able to walk steadily. The exaggeration of the knee-jerks was much less apparent, and the spasms were less frequent and less pronounced, but the ankle-clonus was as distinct as ever. Considering the duration of the symptoms, this result must be deemed satisfactory, and corroborative of the syphilitic nature of the disease. Had he been treated at the commencement of his illness, as far as I can judge from other cases, he would probably have made a good recovery.

CASE 75.—*Paraplegia; anæsthesia; incontinence of urine and fæces: four sloughing bedsores; suspicious cicatrices. Cure under mercurious oleate ointment.*—Jas. W., a labourer, æt. 40, came under observation on 30th June 1885, with almost complete paraplegia and anæsthesia, incontinence of urine and fæces, and bedsores. He was married, and had seven of a family, and his wife had one miscarriage previous to the birth of her last child, twelve months prior to admission.



Six months before I saw him he began to experience a gradual loss of power, commencing in the feet and extending up the legs, inability to micturate, and loss of control over the rectum. He had, too, a feeling of numbness and coldness in the lower extremities "as if standing in iced water," which gradually deepened into nearly complete anæsthesia. This was accompanied by severe pain. In about a fortnight the paralysis had so increased as to prevent him from walking, and he took to his bed.

On admission it was found that the paralysis of the lower extremities was almost complete, and sensation was seriously impaired. There were four very large and deep bedsores, one on each ischial tuberosity, and two over the sacrum, all of which were sloughing. There was incontinence of urine and fæces.

These symptoms were suspected to have their origin in a syphilitic lesion, for the following reasons:—

1. The skin had a very dusky tint.
2. There were numerous cicatrices, circular in outline, and with coppery edges, on various parts of the body, the most marked being the size of a crown-piece, and situated near the left anterior spine of the ilium.

*Treatment* was commenced on 3rd July, and consisted of inunction of Shoemaker's mercurous oleate ointment, 1 drm. daily.

On 16th July it was noted that the anæsthesia had in great measure disappeared, and that he could move his legs much better. The function of the rectum was restored, but the incontinence of urine remained. The bedsores, which were dressed in the ordinary way, speedily healed.

On 4th November he left the Infirmary nearly well, and on 1st August 1886 he walked a long distance to the hospital to show himself. He was perfectly well in every respect, save that the incontinence of urine and chronic cystitis still persisted.

*CASE 76.—Paraplegia with rigidity; tremors; exaggerated reflexes; paresis of bladder and rectum; syphilitic history. Improvement under subcutaneous injections of perchloride of mercury.*—Patrick M., æt. 45, iron-turner; was admitted into the Western Infirmary on 21st February 1887, complaining of paralysis of the lower extremities, with bladder and bowel troubles. The family history was good, and threw no light upon his illness, which he attributed to cold and to draughts in connection with his work.

This began about seven months before with a sense of coldness, coupled with a feeling of weakness in the lower extremities. The paresis gradually increased to such an extent that he became quite unable to walk, and his bowels became very irregular, constipation alternating with diarrhœa. Shortly thereafter he completely lost

control over his bladder and rectum. Soon after the full development of these symptoms he resided for seven weeks in the Royal Infirmary, but without any permanent benefit.

On admission his general health seemed to be fair, although he had lost a good deal of flesh. The paralysis of the lower extremities was not complete, but so decided that he could only walk with the aid of a couple of sticks. He had incontinence of urine, and often passed his fæces in bed, while at other times he was costive. There was no anaesthesia, although he complained of a feeling of "pins and needles," especially in his feet and hips, and of "cold streams" along the outer aspects of the thighs. There was considerable rigidity of the limbs, and the plantar and deep reflexes were much exaggerated.

These symptoms were expected to have a syphilitic basis, from the following considerations:—

1. He had three attacks of gonorrhœa, the first when he was under 20; and fourteen months before I saw him (a fortnight after exposure to infection), he had a single sore on the penis, which was followed by alopecia, a rash upon the skin, sore throat, and sores upon the lips, gums, and tongue.

2. The scar of the sore on the penis was detected, as well as the remains of the lip sores.

*Treatment* was commenced on 1st March,  $\frac{1}{8}$  gr. of perchloride of mercury being injected daily into the subcutaneous cellular tissue, which was preceded by  $\frac{1}{6}$  gr. of morphia sulphate, in order to mitigate the irritating effects of the former.

On 1st May the dose of the subcutaneous injection was increased to  $\frac{1}{4}$  gr.

On 6th May the following report was taken: "Patient's bowels are still very costive, but he never passes his motions in bed, and he can keep his water pretty well. The paraplegia is much less, and he can now stand without support, and can walk with the aid of only one stick. His general health is much improved; and he feels 'livelier and in better spirits,' and stronger."

*CASE 77.—Paraplegia; anaesthesia; bladder and bowel troubles; loss of knee-jerks; pain in limbs and head, nocturnal; syphilitic history. Cure under mercurial ointment.*—D. M'G., æt. 42, a timekeeper by occupation; was admitted to the Western Infirmary on 8th January 1894, suffering from loss of power and numbness of the lower extremities, and severe pain affecting both legs below the knee. These symptoms were of three weeks' duration.

No neurotic tendency could be made out in the family history, and up to the onset of his present illness he had been exceptionally healthy; the only affection he can remember being an attack of pain in the left

side, about four years ago, which lasted a few days. The doctor in attendance called it pleurodynia. It passed off under treatment, and has never returned. He has always been very temperate.

For some weeks before the beginning of the symptoms of which he complains he had a severe cold, which he neglected. About three weeks before admission it became worse, and he had to take to bed. Two days afterwards he began to suffer from pain in the legs, and on the following day, in getting out of bed, he fell at full length on the floor. He could not rise, and was lifted back into bed, when it was found that both lower limbs were completely paralysed. He had not lost consciousness. Anæsthesia set in at the same time in the affected parts. Soon afterwards his bladder began to trouble him. He had difficulty in micturition, sometimes amounting to retention, and pain across the hypogastrium, symptoms which improved under diuretic medicine. His bowels were at first costive, and soon became loose. He lost control over the sphincter, and passed all his motions in bed. About a week after the onset, three or four bedsores formed over the sacral region. Besides the numbness, there was a sensation of tingling in the feet, and, to a less extent, in the hands also. He was treated at home until the cold which had led to "congestion of the lung" was recovered from, when he was sent into hospital.

On examination, it was found that there was almost total paralysis of both lower extremities, only a very slight degree of motion being present in the toes. Anæsthesia was absolute, and extended to within a short distance of the umbilicus, and the knee-jerks were completely absent. He stated that there was no loss of power in the arms, but the dynamometer registered only 10 kilos. in each hand. The bladder was over-distended, as was shown by dulness in the hypogastric region, and the urine was therefore removed.

The pains in the legs were constantly present, and always severe, although more so at certain times. They were worst in the feet. They had no shooting character.

I concluded that the lesion affecting the spinal cord was of a syphilitic nature, for the following reasons:—

1. Nineteen or twenty years ago, after exposure, he had a "very trifling" affection of the penis, the precise nature of which he does not remember. He was treated, for a fortnight only, by internal remedies, and "cured!" There were no secondary symptoms.

2. He married in 1881, at the age of 30. The following record gives the issue of his wife's pregnancies:—(a) Six-months' child, still-born, March 1882; (b) seven-months' child, still-born, rash on trunk; (c) eight-months' child, said to have been dead two weeks before birth; (d) six-months' child, still-born; (e) female child, at full time, apparently healthy, is now 5 years old, and is at present in the Royal Infirmary

with disease of the ulna and tibia; (f) miscarriage at second or third month; (g) boy, at full time, apparently healthy at birth, died a fortnight afterwards from "collapse of lungs"; (h) miscarriage at second month, a year ago.

3. The pains in the legs were markedly worse at night than in the day-time. He has also occasionally had slight nocturnal headache.

The *treatment* consisted in putting the patient on a water-bed, attending to the bladder and bowels, and dressing the bedsores with boracic acid powder. Daily inunction with mercurial ointment was begun on the 9th January, and for some time antipyrin was given every evening on account of the pains in the legs.

A fortnight after admission, he found that he could draw up his legs in bed, and since then the power has rapidly returned. At the same time the anæsthesia became less marked, and finally completely disappeared. About the 28th January he ceased to be troubled with retention of urine, and regained control over the sphincter ani. The bedsores healed rapidly, and were quite cicatrised about the same time. The use of antipyrin was also stopped on that day, as the pains in the legs had gone. On the 10th February he was able to rise and walk a short distance in the ward. Massage was then begun, in addition to the other treatment. He could walk a longer distance every day; and though his legs were tremulous at first, they were perfectly steady when he was examined on 23rd February. Anæsthesia was then completely gone. There was still a slight tingling sensation in the fingers and toes. The knee-jerks, however, had not returned, although the plantar and cremasteric reflexes were normal. The grasp of the hands was much more powerful, the dynamometer registering 36 kilos. in the right and 30 in the left hand on 28th February (as compared with 10 kilos. on admission). This patient left the Infirmary on 13th March, at which time his recovery was perfect; he could walk as well as ever he did, and the knee-jerks had returned. Before leaving, he was shown at a meeting of the Glasgow Pathological and Clinical Society.

CASE 78.—*Paraplegia, preceded by pain in the back and numbness in feet and legs; anæsthesia and analgesia; bladder and bowel troubles; absence of knee-jerks; nodes on head; extravasation of urine. Improvement under mercurial treatment.*—J. M., æt. 29; was admitted into Ward 2 on the 24th September 1894, complaining of loss of power in the legs, with diminished sensation, retention of urine, and constipation of twelve days' duration.

The only point in the past history of this man and his family is, that he himself had a discharge from the urethra seven or eight years ago.

The present illness dates back seven weeks, when there was severe pain between the shoulder-blades. This was treated locally; and, some



weeks afterwards, numbness came on in the feet and legs and the lower part of the abdomen, followed by weakness in the legs and trouble with the bladder, from which the urine constantly dribbled. During this time the pain between the shoulders continued, accompanied by a feeling of tightness round the waist, and progressive enfeeblement of the legs, with shooting pains, until he completely lost power in them five days ago.

There is complete paralysis of the lower extremities, the limbs being perfectly limp. The knee-jerks and ankle-clonus are absent. There is both anæsthesia and analgesia of the abdomen and legs. The bladder is distended half-way up to the umbilicus, and the urine constantly dribbles away. There are three large painless nodes on the head, but no cicatrices are to be found either on the lips, penis, or elsewhere.

Twenty-four ounces of urine were drawn off by the catheter, the diet regulated, the bowels relieved by enema, and mercurial inunction commenced. The urine was afterwards withdrawn daily, and the bowels attended to by enema.

Improvement soon set in, with diminution of the pain in the back; and after four weeks the great toe could be moved, power gradually returned to the legs, and a slight degree of expulsive power over the bladder. An untoward accident took place on 19th October, in the shape of extravasation of urine into the perineum and scrotum. The patient was very ill at this time, and a bed sore, which had been threatening, developed. The perineum was incised. By the 25th he was much better again. Some power over the legs had returned, the anæsthesia was less marked, and the pains had become less severe.

He was transferred on 14th November to Dr. Buchanan's Ward, for treatment of the perineal fistula. The general condition continued to improve slowly. He received no mercurial treatment in Ward 3. On 27th November he could pull his legs up in bed and lay them down again, although the latter act had only recently been possible. He was able also to move the feet. Control over the bladder was very slight. The girdle sensation had disappeared, the bed sore and the fistula were almost healed, and the general health had improved.

On examining the legs, it was now found that rigidity was present, the feet being crossed, but they could be uncrossed voluntarily. The knee and ankle reflexes were now much exaggerated, and a very slight stimulation of the skin produced contraction of the hamstring muscles. There was also marked tremor on exertion. There was still impairment of sensation, but chiefly below the knee. A prick with a pin was at once recognised on the inside of the thigh, but with difficulty over the inside of the calf. Some occasional spasms were complained of. From this time the condition of the bladder and bowels improved, till eventually control became established. Power over the legs also somewhat



increased; but synchronously with this improvement, rigidity, tremor, and spasm became more marked,—the spasms of the left leg being so great that it was impossible for the patient to put it down flat upon the bed. The slightest contact with the toes was sufficient to excite clonic contractions. The nodes on the head did not diminish in size. He was dismissed at his own request on 27th December.

CASE 79.—*Paresis of the lower limbs, especially left; sense of touch diminished, and analgesia most marked in left; right knee-jerk diminished, and left exaggerated, with slight clonus; optic discs hyperemic; bladder and rectum unaffected; pigmented scars on body and limbs. No improvement under potassium iodide, but great improvement under mercurial inunction.*—T. M. G., æt. 40, labourer; was admitted into Ward 2 on the 19th April 1895, complaining of general weakness, but more especially of the legs, and of pain in the epigastric region, symptoms of about fourteen days' duration.

The family and personal histories are both good, and the patient denies having had any venereal disease.

His occupation before the onset of this attack was an exceptionally trying one. Employed in the hothouses at the Botanic Gardens, he was frequently called upon to leave his work and to attend to something out of doors, and this during the severest period of the frost of last winter. He was then transferred to carting work, and often at 5 A.M. was all but frozen. Afterwards, when the weather was still cold, though not intensely so, he was sent back to the hothouse job, and a few days later, or twenty days before admission, began to experience at times a numbness of the left foot.

About a fortnight before admission, or a week after the first symptom, he observed that he was losing flesh and strength, and that his gait had become unsteady. He had also lost appetite, and felt generally ill. Eventually he had to stop work, and applied for admission to the Infirmary.

The following report of his condition was then made:—

The patient is very thin; the legs, indeed, are emaciated,—a fact which is emphasised by the prominence of the bony points about the knees, and by the hollows below the tibial tuberosities. The whole muscular system seems soft, and the dynamometer registers only 28 and 30 kilos. in the right and left hands respectively. There are pigmented scars on the chest, forearms, and legs.

There is paresis of the lower extremities, especially of the left. When walking the gait is feeble, but not at all ataxic; he takes short steps, and brings the whole foot down on the floor at once. When questioned regarding his walk, he says he would be all right but for the weakness of the legs. There is no stiffness or tremor.

Equilibration with the eyes shut and feet together is almost normal, but there is a slight tendency to fall backwards, and when walking he turns with some difficulty.

Sensation is slightly defective in both legs, and there is analgesia, but the left is distinctly more affected than the right. Sensations of heat and cold are practically normal.

The deep reflexes are affected:—Right patellar reflex is defective; left patellar reflex is exaggerated; right ankle, no clonus; left ankle, clonus obtained with difficulty.

The right optic disc is intensely hyperæmic, the left is almost in a condition of neuritis; but there is very little prominence of the papilla in either eye.

The functions of the bladder and rectum are normal. There is no cord-like sensation. The heart sounds are feeble, but no murmur can be detected; there is some tenderness in the epigastrium on palpation, and increased aortic pulsation is felt, but no murmur can be heard. The other organs are normal.

The *treatment* at first adopted consisted of absolute rest in bed and regulation of the bowels, and a mixture containing iodide of potassium and liquor strychniæ was ordered.

No very manifest improvement took place, and it was deemed advisable to resort to mercurial inunction, in the hope that the pigmented scars observed in various situations were indicative of syphilis, and that the symptoms might yield to antisiphilitic treatment. Improvement set in, though slowly. The knee-jerks became more normal, and the tendency to ankle-clonus gradually disappeared. The principal change, however, was in the patient's own sensations of returning activity, better appetite, and improved general health. Sensation in the legs became nearly perfect.

He was dismissed on 14th June, walking almost normally, the left leg feeling a little weaker than the right. He could walk a plank without much difficulty, and could turn round smartly. The optic nerves were still hyperæmic, but the outlines of the discs could be made out fairly well. His appetite was good, and he expressed himself as greatly benefited by his stay in hospital.

#### SYMPTOMS RESEMBLING MULTIPLE SCLEROSIS.

CASE 80.—*Paresis of lower limbs; exaggeration of knee-jerks; ankle-clonus; occasional spasms; tremors on exertion; in upper limbs, tremor on exertion and exaggeration of deep reflexes; slight speech disturbances; history of chancre, and traces present. Great improvement under potassium iodide and mercurial inunction.*—B. J., æt. 34, smith; was admitted into Ward 2 on 12th September 1894, complaining of difficulty

of articulation and of an affection of the extremities. He admitted having been a heavy drinker.

The present, which, with one exception to be mentioned later on, is the only illness which he has had, began six months before admission with a shaking of the legs whenever he had to hold a horse. Soon after this his speech became affected, and in such a manner that, though knowing quite well what he had to say, he could not "get out the right words."

On examination, it was found that the legs were paretic and somewhat rigid, the knee-jerks were exaggerated, and there was some degree of ankle-clonus, as well as occasional spasms. He walked with the feet wide apart, and there was a tendency to come down heavily with the heels, the ataxy being fairly well pronounced. There were also tremors on exertion. Tactile and thermal sensations were normal; there were no bladder or bowel troubles, and the girdle sensation was not present.

As regards the arms, it was only when fine movements, such as using his knife and fork, were attempted, that any deficiency of power was observed, but tremor was marked when the muscles were called into play, and the deep reflexes were decidedly exaggerated. The dynamometer registered 40 kilos. with the right hand, and 33 kilos. with the left.

Speech was slow and hesitating—staccato—and there was tremor of the tongue. Nystagmus and vertigo were absent.

The lesions were supposed to be syphilitic, for the following reasons:—

1. Fifteen years ago he had a chancre on the penis, the scar of which is distinct.
2. He is very pallid, and there is a scar of a bubo in the right groin.
3. On the left shin-bone there is a fulness suggestive of a bygone attack of periostitis.
4. He was married twelve years ago, and had one child, born prematurely, and which did not survive.

On 13th September he was put upon a mixture of iodide of potassium, nux vomica, and arsenic; and on 21st September, and onwards until he was dismissed, daily mercurial inunction, to the extent of a drachm, was added.

On the 14th November, shortly before he was dismissed, great improvement was noted. The arms were stronger, and their tremor had all but disappeared. The legs were also much stronger, with less stiffness and tremor, and the ankle-clonus was nearly gone. He walked well, but there was a slight unsteadiness on turning sharply round. Speech was nearly natural, and he denied that it was in any way defective.

## SYPHILITIC SCIATICA.

CASE 81.—*Syphilitic sciatica ; pain in left sciatic nerve of two years' duration ; nocturnal exacerbations ; traces of past syphilis. Cure under potassium iodide.*—Robert C., æt. 36, an engine-fitter ; was admitted into the Western Infirmary of Glasgow on 16th January 1886, on account of pain in the lumbar region of the spine and in the left lower extremity, along the course of the sciatic nerve, of two years' duration. At first the pain was limited to the spine, but it soon spread to the sciatic nerve, and was much aggravated by movement.

*Evidences of syphilis.*—Eight years prior to admission he had an indurated sore on the penis, which was soon followed by a widespread eruption, sore throat, and headache, which disappeared under treatment. Six months before I saw him, an eruption made its appearance on the inner side of the right thigh, left upper arm, shoulder, and left side of the chest, of which coppery cicatrices remained. The pain complained of was decidedly worse at night.

*Treatment.*—Half a drachm of iodide of potassium was given thrice daily, dissolved in water.

*Result.*—In less than ten days all trace of pain was gone, soon after which he left the hospital.

## V.

### MISCELLANEOUS CASES.

#### RECURRENT PARALYSIS OF THE THIRD NERVE, AND HEMICRANIA.<sup>1</sup>

CASE 82.—M. D., æt. 26, married ; was admitted to the Western Infirmary on 12th December 1893. She complained of severe headache, drooping of the right upper eyelid, and defect of vision in the right eye.

There is no history of a neurotic tendency in the family. Her father died in youth, of "consumption." Her other relatives are alive and well. She married in 1888, and has had two children, both healthy. There have been no miscarriages.

With regard to her previous health, she does not remember the illnesses of her childhood, but she has certainly not had rheumatism, and does not think she has had scarlet fever. As far back as she recollects, she has been subject to headache, with attacks of "biliousness," occurring, on an average, once in six weeks, and lasting for about a week at a time. During the first two days of such an attack she frequently vomited, bringing up a quantity of yellow material, and for the rest of the time she had a feeling of malaise and aggravated headache. In other respects she was quite healthy up to the beginning of her present illness. Menstruation commenced when she was about 16, and has always been regular, without pain or discomfort. There has never been any special excitability at the periods, although she admits she is a "nervous" woman, and very easily excited ; and this feature has become more prominent since her present illness began. She has never suffered from any typical form of hysteria. She is unaware of any cause for her symptoms, and there has been no shock or fright that could have given rise to them. She has never had any paralysis or paresis of other parts, nor has there ever been anæsthesia or paræsthesia of any part of her body.

The present illness began in June 1890, although even before that the right upper eyelid had occasionally "felt heavy" during a severe attack of headache. At that time she had a worse attack of headache than usual, which lasted for a few days. It was accompanied by drooping of the right upper eyelid and external squint. She was treated at home by

<sup>1</sup> Reported by W. R. Jack, M.D.



an application of a fly-blister to the shaved head, and this was followed by a complete but temporary recovery. She remained free from symptoms for two months, when a similar attack took place. Since then there have been recurrences at more or less regular intervals, always followed by recovery. But in the second week of March 1893 she had an exceptionally severe attack. The headache was very violent on the day of onset, and was followed next morning by the usual ptosis and external squint. The headache was much relieved by treatment, but the condition of the eye persisted till June 1893. She was in the Western Infirmary from 30th March till 13th May, and was dismissed *in statu quo*. In June, however, all the ocular symptoms spontaneously disappeared. She remained well till the beginning of October, when she again had a violent attack of headache, and next day all the symptoms returned, and have been present ever since.

From the commencement of her illness she has noticed a gradual loss of colour, and she is now very much paler than she used to be. She feels weaker also than formerly, and is very easily tired. If she is excited she suffers from palpitation, and on going upstairs becomes breathless, and has to rest frequently. Occasionally, also, without any apparent cause, she has a "fainting fit," but this has not happened often. She has no pain in the chest, nor has she ever been dropsical. Her bowels are regular, and her appetite fair.

The headache of which she complains has always been limited to the right side, and usually to an area of about two inches square at the external and upper part of the forehead. The pain is generally dull and heavy, and is not worse at night. It is not constant, but comes and goes at irregular intervals. During the exacerbations, it seems to extend slowly from the area referred to downwards to the outer wall of the orbit, and this is accompanied by a feeling of heat in the eye. When still more severe it extends also in a backward direction along the side of the head, then bends downwards behind the ear. In the earlier attacks the ocular symptoms and the headache disappeared at the same time, but in the last two the affection of the eye has persisted long after the headache. In the present instance the latter disappeared a few days after admission, and any recurrence has been easily checked by phenacetin.

During the whole of her stay the quantity of urine passed by the patient has been, on the average, below the normal. On twelve days it was above it, usually only slightly, but it thrice reached 70 oz. On the other thirty-five days the average quantity was about 40 oz., although it was frequently below this. When she was asked if she had noticed the diminution, she said that she had, but only when she had an attack of vomiting, when the quantity passed in twenty-four hours was always very much less than natural. The vomiting always occurred, according to her statement, when the headache was most severe. It was quite

painless, and preceded only by a slight feeling of nausea. There was no vomiting while she was in hospital, but her account is so far confirmed by the circumstance that on 31st December she had a more severe attack of headache than any other during her stay. It ceased after the administration of phenacetin, and did not end in vomiting, but on that day the urine fell to 14 oz., the smallest quantity noted. During her former residence, from March to May 1893, the quantity passed was also variable, and chiefly too little. There was then no albumin present, but sugar was found in the proportion 4·65 grs. to the ounce. Since then it was repeatedly searched for, but no trace of it ever discovered. In other respects the urine is quite normal.

On examination, the heart and other organs are found to be healthy. The reflexes are normal. There is no evidence of syphilis. There is no anæsthesia over the area of headache, but a slight inaccuracy exists there in determining the exact point touched by a needle, the sensation being referred about an inch to one or other side. The sense of pain is not interfered with. There has been no fever throughout the case.

The treatment adopted was to give phenacetin when necessary for the relief of the headache, and on 18th and 31st December blisters were applied to the nape of the neck. On 9th January faradism was commenced, one pole being applied to the nape of the neck, and the other moved about round the affected eye. A tonic was also given which contained arsenic and strychnine. Under this treatment the general health considerably improved, and the symptoms of anæmia became less prominent. Its effects upon the ocular condition are contained in Dr. Thomson's report.

REPORT ON THE OCULAR CONDITION, BY DR. W. ERNEST THOMSON.  
—“This patient was in the Western Infirmary on a previous occasion, from 30th March till 13th May 1893. The eyes were examined at that time by Drs. Reid and Hinshelwood. Their report is essentially the same as the following account of her symptoms on admission, 9th December 1893. It is to be noted that, although there was no improvement at her dismissal (13th May), the symptoms spontaneously disappeared in June, and remained absent till October, in the beginning of which month, after a violent attack of headache, the old symptoms reappeared.

“*Examination of eyes on the present occasion.*—Right visual acuity  $\frac{6}{12}$ , left  $\frac{6}{6}$ , both in good daylight, and uncorrected by lenses.

“There is complete ptosis of the right upper lid, with apparent partial ptosis of the left; but, upon closing the right eye with the hand, the patient is immediately able to raise the left upper lid to its full extent. There is therefore no real ptosis of the left lid.

“The patient habitually covers the right eye with her handkerchief

in her hand, in order to avoid distressing diplopia, and if not allowed to do so, the head is thrown backwards, and the face is turned to the left side, while the eyes are fixed on any object. On raising the upper lid, the pupil is found to be dilated to a medium extent, and does not react either to light or to accommodation; and on telling her to look straight forward, with the upper lid thus held up, the head assumes the above-mentioned position backwards and turned to the left, the eyes accordingly assuming a position relatively to the face which corresponds to the action of the right external rectus and superior oblique muscles, namely, downwards and to the right. It is noticed also, that while, as noted above, the left lid rises when the right is held down, if the right be held up the left droops more than before, and covers a considerable portion of the pupil. In short, every possible effort, voluntary and involuntary, is made to avoid the diplopia which is here so marked.

“Although the distant vision is fairly good, she cannot read at the ordinary distance with the right eye. There is paralysis of accommodation.

“Regarding the range of motion of the right eye, the patient is capable of sustaining an effort of fixation only when the eye is turned to the right. In other directions she is only able to make a temporary effort, the eye almost immediately rotating back into its position of rest, which in this case is downwards to the right.

“*The diplopia.*—The patient’s head being held steady, and the two upper lids held up, a coloured glass is held before one eye; on looking at a candle, held at 2 metres directly in front, there is a diplopia which is ‘crossed.’ This diplopia disappears when the candle is carried to the right, and becomes more manifest (images farther apart) when it is carried to the left. There is also double vision when the candle is raised or lowered directly in front of the patient. She denies the existence of diplopia at all points to the right of a median vertical line, but her statements must not be relied upon absolutely, either in this respect or regarding the inclination of the double images.

“There is therefore paralysis, or at least paresis, of all the muscles supplied by the third nerve, namely, the levator palpebræ superioris, as shown by the ptosis; the internal, superior, and inferior rectus, and the inferior oblique, as shown by the position of the eye at rest, and by the character of the diplopia; and of the ciliary muscle and sphincter pupillæ, as shown by the absence of accommodative power and the semi-dilated and immovable pupil.

“*Ophthalmoscopic examination* is almost impossible, owing to excessive lachrymation when the lid is raised by the finger. It is noted, however, that there is no marked change in the fundus, and that there is a total hypermetropia of 1 dioptré. (Dr. Hinshelwood confirmed this observation.)

*"The fields of vision (16th and 18th December).—*The field of the right eye for white light is normal ; but the fields for colour show very considerable limitation peripherally. The day (18th December) was somewhat dull, and the pieces of coloured taper used as test objects were rather small ; but, notwithstanding these facts, there can be no doubt that the colour fields are limited to a great extent, and limited in their natural order, green being most tardily recognised, and yellow most easily named, blue and red being intermediate. Green is only recognised when brought quite near to the fixing point."

THE SUBSEQUENT COURSE OF THE CASE.—16th December.—The diplopia is not so distressing. The mobility of the right eye has improved, and some sustained effort of fixation can be made. The accommodation, however, is still in abeyance, and the reaction of the pupil to light has not returned.

28th and 31st December.—There is no further improvement in the ocular condition.

1st January 1894, 11 A.M.—The right eyelid could be partially raised for the first time since admission, allowing the pupil to be seen, but the upper segment of the cornea is covered by the lid. No great complaint is made of diplopia. The opening of the right eye is accompanied by an extremely rapid tremor of the right upper lid, accompanied by drooping and similar tremor of the left lid.

2 P.M.—Coincidentally with a fresh attack of hemicrania, the right upper lid began to droop again. On looking straight forward, only the lower part of the pupil is now visible to the observer.

10 P.M.—Ten grs. of phenacetin having been administered, the hemicrania has become less severe, and by a determined effort the right upper lid can be fully raised, the act being accompanied by drooping and violent tremor of the left lid. As before, if the right lid be held down, the left can be fully raised.

2nd January.—No change.

10th January.—The range of movement of the right eye is distinctly improved towards the left, in the sphere of action of the internal rectus. Accommodation is still quite in abeyance, and the pupil is fixed. The divergence of the right eye persists. The power of raising the upper lid is certainly no better than on 1st January. Patient says her general health has improved.

17th January.—The ptosis suddenly and completely disappeared this morning.

20th January.—Ptosis still absent, accommodation still in abeyance, pupil fixed, ocular movements much improved, but diplopia still present. A chart was made of the colour fields. The day was fairly bright, and the coloured tests larger than on 18th December, two circumstances



which must be set against the fact that the fields are less contracted than on 18th December. On the other hand, the field for white is contracted on the temporal side, which was not the case on 18th December, when the field for white was normal.

23rd January.—For the first time perimetric tracings were taken of the left eye. The day was fairly bright, and the test objects the same as those used in the second tracing of the right eye, namely, the test colours supplied with Priestley Smith's perimeter. The field for white shows sector-shaped defects, giving the field of vision an irregular stellate shape. The colour fields are also contracted, but in a much less regular manner than those of the right eye.

26th January.—The fundus of both eyes examined, and found normal by Dr. Jack.

28th January.—The ptosis returned this morning, after a severe attack of hemiparesis.

29th January.—The pupil is more dilated than before this last attack. By a strong effort patient can slightly raise the eyelid. This she was unable to do yesterday. The headache has disappeared. The ocular movements maintain the improvement noted on 20th January. There is still diplopia to the left of the middle line. Dismissed *in statu quo*.

31st January.—The ptosis again disappeared when at her home.

6th February.—The ptosis is still absent, the ocular movements are fairly good, but accommodation and pupillary reaction are still absolutely in abeyance.

#### CASES OF HYSTERO-EPILEPSY.

CASE 83.—On 14th February 1879 there was admitted under my care in the Western Infirmary, a domestic servant, æt. 18, who was suffering from fits. Her father and mother and two of her sisters, she thought, died of phthisis; but there is no history of epilepsy or other nervous disease in the family, except that she believes a cousin on her mother's side to be similarly affected. Until three years before admission, when she had an attack of typhus fever, she always enjoyed good health, and it was during convalescence from it that her first fit occurred. At the commencement the fits recurred about once a month, but they have gradually become more and more frequent, and now she has them almost every day, but at no particular time. She has only menstruated once, about a month ago, and when menstruation commenced she had a fit. She complained of nothing else till pressed, when she admitted that she had an almost constant pain in the left iliac region; and she stated that if she got a fright at any time, the left leg and arm, especially the latter, became firmly contracted for a moment. Her



tongue was not very clean, but her appetite was good, her bowels regular, and her temperature normal.

A careful examination of the patient soon showed that the history given far from exhausted the category of her symptoms. She had amblyopia on the left side, in so far as she had great difficulty in reading small print with the left eye; and she was colour-blind with it, to this extent that she recognised blue, yellow, and red, while green she called black or navy-blue, and violet black. This corresponds with Charcot's observations, who states that the colours disappear according to a mathematical order,—violet disappearing first, then green, then red, then yellow, and blue last of all. It seems, too, that for a quarter of an hour after a fit everything appears white. Another peculiarity noted was slight powerlessness of the left side, not amounting to paralysis, as there was no lameness; but on squeezing the dynamometer with the right hand, it registered 65, while with the left only 35 kilos. But a much more marked feature, and one which the patient apparently was not aware of, was complete hemianæsthesia of the left side. This was tested over and over again, the patient being blindfolded, and every precaution being taken to prevent deception; and it was uniformly found that there was complete loss of the sense of touch, of temperature, and of pain. A needle could be thrust into the arm or leg ever so far without the patient wincing in the least, while the slightest pinch on the right side made her start. It was observed, too, that the needle punctures bled much more readily on this side; and once or twice it was noted, when the sensation was temporarily restored to the left side, by the methods to be mentioned later on, that punctures on that side began to bleed which were altogether bloodless while the anæsthesia was present. This affords one of many proofs that the symptoms were not feigned. The loss of sensation was not limited to the skin, but likewise involved the mucous membranes on the left side. Thus the left eyeball could be touched without her wincing in the least. She had also lost the sense of taste upon one side of the tongue, as she could not recognise coffee or salt when placed upon the left side, although she had no difficulty in doing so on the right. This loss of general and of special sensation was exactly limited to the left side, for on crossing the middle line she at once told us, although carefully blindfolded.

On deep pressure over the right ovary no complaint was made; but on the left side, although the skin was quite anæsthetic, and could be pinched up without her knowing it, there was marked tenderness. On this side the ovary could be felt, being somewhat engorged, and every time it was compressed she heaved a deep sigh; and I have very little doubt that, had I felt justified in keeping up the pressure just sufficiently to cause pain, a fit would have been induced.

I had the opportunity of seeing only one fit, which occurred one day

after she had been mesmerised, but it was evidently identical in its characters with those seen by my assistant, Dr. Dunlop. Each fit consisted of a series of paroxysms, lasting two or three minutes, with intervals of somewhat similar duration, their number varying on different occasions, sometimes as many as fifteen being observed, the whole fit lasting from half an hour to three hours. The fit was preceded for a second or two by a peculiar creeping sensation, beginning in the region of the left ovary, extending gradually up the abdomen, thorax, neck, and head, and causing ringing in the ears and specks to float before the eyes, after which everything was a blank to her. When in a fit she always lay upon her back. The first thing observed was that her fingers and toes twitched, and as this became more pronounced, she stretched her arms out at right angles to her body; her face became flushed; she ground her teeth, and is said occasionally to have bitten her tongue; her breathing became spasmodic, but consciousness was not entirely abolished. As the paroxysm progressed, the convulsive movements became more widespread and tonic, and marked opisthotonos generally ensued. During the paroxysms, which passed off gradually, she occasionally uttered a cry. In the intervals she lay still, apparently unconscious, with her eyes fixed, but on blowing on her face she closed them for a moment, and occasionally gave a gasp. Both sides of the body were equally affected, and the first of the series of paroxysms was generally the most severe. For about a quarter of an hour after the cessation of each fit she was quite unable to speak, and during this time (as before mentioned) she had no perception of colours, everything appearing to her white. The fits, too, were sometimes succeeded by sleep, at other times by very severe headaches; but when they were over she had no recollection of them whatever.

Such being the state of the patient at the time of her admission, it was determined to search for a metal which might have some influence on her symptoms. The following observations were therefore made:—

On 21st February, at 10.30 A.M., three pieces of gold (a sovereign and two half-sovereigns) were applied in a slanting direction to the left temple. The sovereign was the highest of the three coins, and was situated just above the outer end of the eyebrow. For some time there was no alteration in her condition, but in twenty minutes she had a feeling as if “something living” was moving from temple to temple. Sensation and the sense of pain now extended beyond the middle line of the forehead as far to the left as the sovereign, but no further, while the sensation on the right side remained perfect as before. In twenty-three minutes she could distinguish the colour of violet with the left eye, but green she still called black. The sight of the right eye was not affected, but she complained of frontal headache, sighed frequently, and had spasmodic jerkings of the head. On removal of the coins,

under which the anæsthesia was unaffected, the headache and jerkings disappeared. At 3 P.M., when she was again seen, the alteration in the symptoms above mentioned still persisted.

At this time a large magnet was held over the left forearm, at a distance of about half an inch from the surface. In half a minute sensation began to return to the left forearm, and within five minutes there was complete return of sensation and sense of pain to the whole of the left side of the body, but the whole of the right side had become completely hemianæsthetic and analgesic. The left eye continued in the same state as regards the colour-blindness as before the observation, but with the right, green appeared to be black. The magnet was next laid over the right forearm, at a distance of half an inch from it, and in two minutes and a half sensation had returned to the whole of the right side of the body; but, contrary to expectation, the left side did not again become anæsthetic, so that sensation was now perfect over the whole body. The colour-blindness remained as before the last observation.

Next day (22nd February) she was in the same state,—that is, sensation was perfect all over; with the left eye she could distinguish all colours, while with the right she mistook green for black. The magnet was now placed within half an inch of the left forearm, and in three minutes the whole of the left side became anæsthetic and analgesic, including the mucous membrane of the left eye (which could be touched without the patient feeling it at all), left side of the nostril, mouth, and tongue, the sense of taste being likewise gone on this side. The colour-blindness did not, however, reappear on the left side, although with the right eye she mistook violet for black. The left ovary continued tender. The magnet was next held close to the right forearm, and in three minutes sensation had disappeared from the right side of the body, but there was no transference of the sensation to the other side, so that the whole body was now anæsthetic, including the mucous membranes, and she had entirely lost the sense of taste. When in this state a circular piece of lead, 4 in. in diameter, was fastened to the right forearm, and in one minute sensation was restored to both sides of the body, and there was no colour-blindness with either eye, but the left ovarialgia persisted. A piece of tin of the same size and shape was next applied over the left arm without her knowing of the change of metal, but in seven minutes, there being no alteration in the symptoms, the lead plate was substituted, but was removed in five minutes, as it had no effect. The magnet was then held over the left forearm, and in a minute there was anæsthesia and analgesia of the right side of the body; but on transferring the magnet to the right side the anæsthesia and analgesia were immediately transferred to the left side. She could now distinguish all colours with the right eye, but with the left she called green black.

At a meeting of the Medico-Chirurgical Society on 28th February, before a large number of the profession, the patient was blindfolded, and the following additional observations were made :—(1) The ordinary magnet with keeper on had no effect, though used for at least ten minutes; (2) a large electro-magnet was employed by my colleague, Professor M'Kendrick. So long as the current was not allowed to pass there was no result, but in three minutes after it was turned on, without her being made aware of it, the sensation returned to the right side of the body, while the right became anæsthetic and analgesic, being the reverse of her state before the electro-magnet was used.

On Tuesday, 4th March, with the co-operation of Drs. M'Kendrick, Ramsay, and Service, and the patient being blindfolded, a solenoid was placed on the little finger of the left (anæsthetic) side. For seven minutes it was not connected with the battery (Stohrer's), which was placed underneath the bed, with an assistant in charge of it, and there was no result. The connection was then made (and in such a way that it was absolutely impossible for the patient to know what was being done), eight cells being in use, and in seven minutes the left side became æsthetic, and the right anæsthetic.

The temperature was compared simultaneously on the two sides before the transference, by means of Lombard's delicate thermo-electro apparatus (which, however, does not give the difference in degrees), and it was found that the right side was the warmer. The same result was obtained after the transference of the anæsthesia to the right side, as well as on the following day, the condition of the patient in the interval remaining the same as after the employment of the solenoid.

On 19th March internal metallotherapy (Burgism) was resorted to, —that is, the internal administration of the metal which, applied externally, caused a transference of the phenomena. Lead being one of the metals in question in this case, the acetate of lead in doses of 2 grs. was given in pill thrice daily.

Next day (20th March) she had a fit which lasted for an hour; and on the afternoon of the 25th, while sewing, she noticed that sensation had returned to the left side. The left ovarian tenderness was now found to be diminished, though not gone, but the colour-blindness as regards violet remained.

The treatment was continued up to the time of her leaving the hospital on 5th April. While under observation she had all along been very troublesome, and she finally left, after having quarrelled with one of the "scrubbers." At this time she was in the same state as on 25th March.

The symptoms observed in this patient corroborate in the main those recorded by Charcot, with some exceptions, however.



Thus—(1) She was susceptible to more than one metal,—to lead and partially to gold; (2) after the anæsthesia was transferred to the right side with a magnet, on using it on the right side sensation returned to that side, but did not leave the left; (3) sensation being perfect on both sides, the magnet was applied to the left arm, and sensation disappeared on that side. Then, on applying it to the right arm, the right side became anæsthetic, but the left side remained anæsthetic too, so that the whole body was now anæsthetic, and there was tenderness (though not so marked) over the right as well as the left ovary, indeed over most of the abdomen; (4) on applying lead to the right arm, the whole body being anæsthetic, sensation returned to both sides.

I purposely abstain from any remark upon this case, further than to say that, extraordinary as the symptoms undoubtedly were, I thoroughly satisfied myself that they were real, and not imaginary, and that deception on the part of the patient was altogether out of the question.

CASE 84.—The following case presents most of the symptoms observed in the last, although the epileptiform seizures occupied a much more subordinate place; but it differs from it in that the patient suffered in addition from partial hemiplegia, from irritation of the spine, and from phantom tumour of the abdomen; while the results of various applications to the surface were somewhat different, and calculated in some respects to support the theory of expectant attention as the cause of the phenomena.

This patient, a married woman, æt. 28, was admitted into the Western Infirmary under my care on the 22nd October 1879. She had been formerly (15th March 1877) in the wards of one of my colleagues, and from the Ward Journal the following particulars were gathered. She complained at that time of pain in the iliac and hypogastric regions, especially the left. The abdomen also was very much distended, the enlargement being uniform and extending even up to the sternum, and the abdominal walls were very tense. Up to the age of 16 she enjoyed good health, but at that time she had inflammation of the left lung, and since then has never been very strong. When recovering, she menstruated once for the first time; she did not menstruate again for a period of two years, and since that time the monthly discharge has been very irregular. At the age of 18 the abdominal swelling was first observed, and she has been troubled with this on and off ever since. When between 23 and 24 years of age she received a kick from a horse in the left iliac region, the pain from which was relieved by the application of leeches. Six months thereafter she was married; and about



a year after that, and three weeks after having been kicked on the abdomen by her husband, she had a miscarriage, and since then she has never been free from pain. She also complained of a choking sensation in the throat at times, and suffered occasionally from severe headaches; and when she was in the Infirmary on the first occasion she had four fits, which were believed to be of a hysterical nature. She had sometimes, too, attacks of sickness and vomiting. She remained for about three months in the hospital with but slight improvement.

On re-admission, on the 22nd October 1879, she presented most of the symptoms above mentioned, with the following additions:—Her bowels have long been very costive, and now she is never moved without medicine. She has frequently difficulty in making water, and at times the catheter has to be used. She has also, in great measure, lost the power of the left lower extremity, which she attributes to an inflammation of the calf of the left leg which set in during the winter of 1877, which was accompanied by much pain and swelling, and which lasted about six weeks. She has had to use a crutch ever since.

She was a healthy-looking, well-nourished woman. There was no fever, but her appetite was indifferent. She had occasional attacks of nausea and vomiting, and her bowels were so costive that she often passed a week without a motion. It was with difficulty that we could get her to speak at all, and then only in a whisper. She wept readily, was bashful and could not look one in the face; in fact, she had the typical appearance of a hysterical female, as might have been anticipated from the history just given.

The left arm was found to be weaker than the right, and on squeezing the dynamometer with the right hand it registered 40 kilos., while with the left she could make no impression upon it at all. The left lower extremity was much more decidedly paralysed, and when she walked she dragged her foot after her. This limb also was stiff, and the foot strongly extended. There was very slight wasting of the muscles from disuse. The electro-muscular sensibility was very defective, but the muscles responded normally to faradisation; in fact, the usual symptoms of hysterical paralysis were present.

The abdominal enlargement, always considerable, was sometimes very great; at times it was uniform, at times the prominence was greater in one locality than another, notably on the right side below the liver. Along with this there was marked arching of the back in the lower dorsal region, so much so that the closed fist could be readily placed between the spine and the bed. No tumour, however, could be made out, and if her attention was completely diverted, while the abdomen was firmly compressed by the hand, the abdominal enlargement in great measure subsided, and on putting her fully under the influence of chloroform it entirely vanished.

On examination of the spine, two or three of the lower lumbar vertebrae were found to be very tender on pressure, although she made no complaint of pain in this locality previous to the examination. The whole of the left side of the body was completely anæsthetic as regards touch, temperature, and pain; there was also complete loss of general and special sensation on the corresponding side of the tongue; vision on the left side was also very defective, so much so that she was unable to read anything, and with this eye she was tested with six colours,—red, green, yellow, blue, mauve, and black,—and was found to be completely colour-blind.

On *Monday, 17th November*, metallo-therapy was resorted to. At 10.15 A.M. a circular disc of lead, about 3 in. in diameter, was applied to the left forearm. At 10.22 A.M. there was a transference of the anæsthesia from the left to the right upper extremity. On the abdomen the transference was less complete, while no change could be detected on the neck, head, or lower extremity. Vision was much improved in the left eye, and all colours were now recognised except yellow, which was called brown. In about 3 minutes more, at 10.25 A.M., the anæsthesia was completely transferred to the whole of the right side of the body. On 21st November (the patient's symptoms being the same as on admission, except that the vision of the left eye was much improved, she being able to read print of medium size by holding the book about an inch and a half from it, and being able to name all colours correctly, with the exception of yellow, which she still called brown, as after the first observation), the disc of lead was again applied to the left forearm at 3.53 P.M. At 3.58 P.M., sensation began to return in the neighbourhood of the plate, while it disappeared at the corresponding part of the right forearm, and this went on spreading until 4.2 P.M., when the patient began to weep, and then the transference of the anæsthesia to the right side was found to be complete. The left eye, too, was found to be normal, both as regards vision and the discrimination of colours. With the right eye, however, she could not read the same type as she did before the plate was applied. With it she could distinguish blue, but yellow she called brown, and the other colours she said she did not know. 4.13 P.M.—The same plate was applied to the right forearm. At 4.18 P.M. sensation had returned in the neighbourhood of the plate, and the needle punctures made in testing that part began to bleed. At 4.20 P.M. she began to weep, and then it was found that the transference of the anæsthesia from the right to the left side, which had been slowly advancing, was complete. The right eye was now normal in every respect, while with the left she could read medium type as before, but could distinguish no colour except blue.

22nd November, 3.15 P.M.—Patient in same state as on admission, except that she could distinguish colours with the left eye, with the

exception of black and yellow, which she called brown. At 3.21 P.M. a circular disc of wood, about 3 in. in diameter, was applied to the left forearm. At 3.24 P.M. there was a transference of the anæsthesia to the right side, the sensation on the left side first appearing in the neighbourhood of the disc, from which it quickly spread, and the patient weeping, as on former occasions, when the transference took place. The left eye was now found to be perfect in every way, while with the right, although she could see print, she could not read it, and she could distinguish all colours except yellow, which she called brown. At 3.34½ P.M. a disc of wood was applied to the right forearm, and at 3.37 P.M. the transference of the anæsthesia to the left side occurred exactly in the same way as in the last observation. These results were so extraordinary that the observations were repeated, and with exactly the same result.

*24th November.*—Right side in every way normal. Left side, complete anæsthesia as on admission, but with left eye can read print of medium size at a distance of 1½ in., and can distinguish all colours except yellow, which she calls brown. 9.30 A.M.—Five sovereigns were applied to the left forearm and kept there for 37 minutes. It was then found (what had been indistinctly observed a quarter of an hour earlier) that there was partial return of sensation as regards touch and pain, but not as regards temperature, to that side, and a corresponding loss of sensation (including, however, defective sense of temperature) on the right side. There was no change, however, in the condition of the eye.

*26th November.*—Patient in the same state as at the end of last note. 9.9 A.M.—Lead plate applied to right forearm. At 9.13½ A.M. sensation became more distinct in the neighbourhood of the plate; and at 9.15 A.M. the patient began to weep, and sensation was completely restored to the whole of the right side. With the right eye all the colours were distinguished except yellow, which was called brown. The left side of the body, including the tongue, was now completely anæsthetic, but by the left eye all colours were distinguished accurately. 9.19 A.M.—Lead plate applied to the right side of the face, and in two minutes all colours were distinguished accurately with the right eye, but with the left she called yellow brown, and was not sure about green.

*14th December.*—Since last note patient has been left entirely to herself. When tested to-day she was found to have dulled sensation on the right side, a needle stuck into the arm or leg being felt only as something touching her. On the left side she could only feel very heavy pressure. The tongue was in the same state as the body,—that is, sensation was dulled on both sides. Her perception of colours was nearly perfect, although yellow she still called brown with the left eye. 4.37 P.M.—A tin plate applied to the left forearm. At 5.7 P.M. there was

a decided though not complete transference of anæsthesia to the right side, while the sensation was nearly though not quite restored on the left. With the right eye she now called yellow brown.

*4th January 1880.*—Sensation dulled on both sides of the body, less so, however, on the right than on the left side; tongue in a similar condition. Can distinguish all colours equally well with both eyes. 11.15 A.M.—Lead plate applied to left arm. At 11.20 A.M. there was some improvement in the sensation on that side, and at 11.40 A.M. it was nearly complete, while on the other side it was proportionately dulled. Tongue and eyes as before.

*13th February.*—It was intended to test the patient with solenoids and electro-magnets, in conjunction with Professor M'Kendrick, but she was allowed an airing in the grounds, and took advantage of it to get away. A patient in the wards saw her making for a tram-car in the neighbourhood, and said that "she walked as well and as quickly as any woman could."

In the present state of uncertainty as to the nature and explanation of the phenomena observed in cases such as those just reported, it will probably be better to abstain from offering any speculations upon the subject, although it is to be hoped that by and by, when our experience of them becomes more extensive, a trustworthy opinion may be formed.

But it may be pointed out, in conclusion, that the second differs from the first case in these respects:—

1. That, in addition to the usual symptoms of hystero-epilepsy, there was well-marked spinal irritation, and morbid states long regarded as manifestations of the hysterical diathesis, namely, hysterical hemiplegia and phantom tumour of the abdomen.

2. That the convulsive seizures occupied a very subordinate place in the symptomatology of the disease.

3. That no tenderness in the ovarian region could be made out, although this may be due to the ovary having been protected from pressure by the prominent abdomen.

4. That the application of a disc of wood had a similar effect to that of a metallic disc, as regards the transference of the anæsthesia, etc., from one side of the body to the other.

5. That in no case did we succeed in making the whole body at once either æsthetic or anæsthetic.

## HÆMORRHAGE INTO THE SPINAL MENINGES (?)

CASE 85.—W. R., æt. 42, a builder; was admitted to Ward 11 on 21st January 1893, complaining of loss of power in the arms and legs, of a week's duration.

His father died at the age of 43 of "rheumatism," his mother of pleurisy. He has had seven children, of whom two died young; the others are alive and well.

He himself has always been a healthy man, with the exception that, for the last four years, he has had "rheumatism" of the shoulders.

A week before admission, while in his house, and leaning against the dresser, he suddenly fell to the floor. There was no loss of consciousness, but both arms and legs were found to be completely paralysed, and there was no ascertainable cause. Since then his bowels have been obstinately constipated, and there has been dysuria.

Since the onset of his illness he has been recovering, and is now able to walk. As he does so his legs are seen to be tremulous and weak, but there is no rigidity. Spasms are also absent. Both knee-jerks are exaggerated, the left somewhat more than the right. A slight ankle-clonus is present upon the left side. On admission it was also present upon the right side, but cannot now be made out there. Both legs are easily held down against his efforts to raise them, but the left offers much less resistance than the right. The right arm can be moved with comparative freedom, the left but slightly. In the right hand the dynamometer registers 45, while in the left it is *nil*. The tendon reflexes are exaggerated in both arms, but more in the left than in the right. There is no anæsthesia, but he complains of numbness all over the body, especially in the legs and arms, and across the back in the lumbar regions. Pressure upon the spine elicits tenderness, extending from the sixth cervical to the second dorsal vertebra.

The patient was kept at rest in bed, the bowels were regulated, and the state of the bladder carefully watched. A fly-blister was applied over the tender portion of the spine. He was ordered 1 drm. of the liquid extract of ergot thrice daily, and at night-time a hypodermic injection of  $\frac{1}{100}$  gr. atrop. sulph.

Under this treatment he rapidly improved, and on 15th February he walked much better and less tremulously. The dynamometer now registered 42 in the left hand, in the right 122. The bowels were still very costive, but the dysuria had ceased to trouble him. The spine was no longer tender.

From this date the power of walking continued to improve, until there was no noticeable tremor, but he always complained of a slight stiffness, especially in the left leg. The grasp of the hands did not improve beyond the point above indicated.



General health was fairly good, but he said that he still felt rather weak, and the bowels, though less costive, still required aperients to move them. He left on 1st March.

This is a very unusual case, not on account of the extent of the paralysis, but on account of the startling suddenness with which the symptoms made their appearance, altogether without premonition, and unaccompanied by sensorial disturbance. We were thus led to suspect that hæmorrhage—which as a rule occurs earlier in life within the spine than within the cranium—was the cause of the mischief, not into the substance of the cord, but within the meninges or outside the dura mater; for in the latter case, while there may be sudden and complete paralysis of motion, sensation may be little if at all interfered with; and while, in hæmorrhage within the grey matter of the cord, the symptoms generally become more and more pronounced, and a fatal issue is the rule, in meningeal hæmorrhage a more or less complete recovery, as in our patient, may reasonably be anticipated.

Whether there was any antecedent organic lesion of the cord—tumour or the like—it is impossible to say, although it is worthy of note that, on admission, there was tenderness over the lower cervical and upper dorsal spines; while for several years the patient had complained of pain, referred to the shoulders.

#### DISLOCATION OF CERVICAL VERTEBRÆ; COMPRESSION AND SOFTENING OF THE CORD, WITH CENTRAL HÆMORRHAGE.

CASE 86.—H. C., æt. 69, an engine-fitter; was admitted to Ward 11 on the 21st January 1895, in a semiconscious condition. A friend who accompanied him stated that patient had fallen back suddenly in his chair while playing dominoes in a public-house; that he was not intoxicated at the time; and that he was not a heavy drinker. The post-mortem examination, however, left considerable doubt as to the truth of these statements, as will be seen on reference to the account of it.

The observations made immediately on admission were that he was only partially conscious, with equally contracted but reacting pupils; that he could move his arms, which seemed stiff, but apparently could not move his legs, which were quite flaccid on manipulation; that he could feel a pin-prick both in the legs and arms, and that he suffered pain when moved.

Some hours later he became more conscious, and complained of pain all over the body, but of especial severity at the back of the neck and

between the shoulder-blades. He cried out loudly if turned over, and when any pressure was put upon the chest.

He was kept warm with hot bottles and flannels. An attempt was made to evacuate the bowels, and the urine was withdrawn. During the night, owing to signs of failing respiration and circulation, a hypodermic injection of strychnine and ether was administered with good effect.

On making a more detailed examination next day (22nd January), it was found that the surface of the trunk and of the extremities was cold, the pulse slow and feeble, the respiration shallow. Both legs and the left arm were completely paralysed, the right almost completely. Sensation was absent from the legs, from the trunk below the level of the second rib, and from the arms below the middle of the upper arm. The face was not affected, either as regards motion or sensation.

The provisional diagnosis made was a hæmorrhage, more probably in the centre than on the surface of the upper part of the cord.

On the morning of the 23rd the patient suddenly died, asphyxiated.

*Post-mortem examination.*—"Summary.—Dislocation of cervical vertebræ, compression and softening of the cord, with central hæmorrhage. Fibrous transformation of the heart. Atheroma of the coronary and cerebral arteries. Slight subarachnoid hæmorrhage."

Examination of the dislocated part showed that complete severance of the bodies of the fifth and sixth cervical vertebræ, with laceration and disintegration of the intervertebral disc, had taken place. The hæmorrhage mentioned in the summary extended in the central canal of the cord for some distance above and below the softening.

*Note.*—No account of any violence such as would produce dislocation of the vertebræ was given in the history. The case was reported to the procurator-fiscal, and the following is the history of the case before admission, as supplied by the police :—He had been sitting alone in a public-house for about two hours, and there had been no noise in the room, and no suspicion of his having been injured while there. He was found sitting before the fire in a drowsy and stupid condition, and paralysed to the extent stated in the body of the report. It is to be regretted that a more exhaustive investigation was not made by the police, as there is reason to fear that the whole of the facts had not been elicited.

#### CASE ILLUSTRATIVE OF THE OCCASIONAL DIFFICULTY IN THE DIAGNOSIS OF THE "GASTRIC CRISES" OF LOCOMOTOR ATAXIA.

CASE 87.—C. R., æt. 37, mason; was admitted to Ward 11 on 31st October 1895, complaining of pain in the upper part of the abdomen, associated with vomiting.

No neurotic tendency could be made out in the family history. His father died at the age of 66 of influenza; his mother at 75, of "old age." He is one of a family of ten. Six are well. One died in infancy, one of cancer of the breast, and the third from a cause unknown to the patient.

He was always a healthy man, till six and a half years ago. At that time, when riding one day, he was struck violently by the pommel of his saddle. He suffered considerable pain, blood was passed on micturition for a day, and for several days there was a discharge from the urethra. No further urinary trouble, however, followed. He has never had any venereal disease. Six years ago, after a wetting, he had an attack of "rheumatic gout," the ankles and knees being affected. He was confined to bed for two weeks, and was off work for seven. His present illness seems to date from four years ago. At that time he had a fall from a height of fourteen feet, landing on the abdomen. No definite injuries were discovered, and after remaining in bed for two days he got up. Nausea and vomiting followed, however, and he went back to bed immediately. He had several attacks of vomiting during the next three days, but in a day or two more he returned to work. The vomiting was unaccompanied by pain, and did not seem to be specially connected with the taking of food. During the following year he had five similar attacks. These gradually increased in frequency, and during the next year he had twelve. Now, however, the vomiting was preceded and accompanied by well-marked pain in the upper part of the abdomen. During the last two years the attacks have increased in frequency, and for a long time before admission occurred twice daily. When the pain was very agonising, a distinct swelling of the upper part of the abdomen was present, and persisted in varying degree till the pain passed off, but there was no tenderness. There was no history of jaundice or gall stones, nor has there been any vomiting of blood. Constipation was present throughout. In the intervals between the attacks he feels pretty well, and the digestion is not disturbed.

For fifteen years prior to last June he resided in South Africa, and during the last four consulted many doctors about his symptoms. Various views were held as to their cause. They were ascribed at different times to "indigestion," "sluggish liver," "gall stones," "obstruction of bile," "obstruction of bowel," etc. In June his medical adviser, considering that there was some "obstruction in connection with the biliary apparatus," sent him to a surgeon in England for operation. Since his arrival in this country in July he has consulted several medical men, and for a month was under treatment for "stricture of the bowel." No form of treatment has hitherto given him much relief.

On admission he was put upon light diet in six small meals daily;

regulation of bowels with castor-oil, and half-drachm doses of liq. pepticus after each meal.

15th November.—For three or four days after admission the pain and vomiting were less severe, but latterly the pain has increased, though the vomiting continues less.

The attacks occur fairly regularly twice a day, usually in the early morning and afternoon. They set in with severe pain, situated across the front of the abdomen, between umbilicus and epigastrium. The pain varies in intensity. It does not pass round to the spine on either side, and is never shooting in character. It is relieved somewhat by pressure, and there is no tenderness. When the pain is acute, a prominent round swelling appears in the epigastrium. It is tympanitic to percussion, and tense, but as the pain lessens it becomes soft and compressible. It comes and goes with the paroxysms of pain. No definite tumour can be felt, and there is no visible peristalsis. The spasms of pain come at irregular intervals for two or three hours, and then pass off. During an attack he suffers from nausea, and usually vomits once or twice. The vomited matter consists first of food (if a meal has been recently taken), and then of clear mucous fluid, frequently mixed with considerable quantities of bile. The vomiting is not related to the taking of food.

29th November.—Yesterday he complained for the first time of pains of a shooting character in the legs. To-day he was carefully examined, with the following result. The knee-jerks were found to be absent, and on the suspicion that he might be suffering from locomotor ataxia, he was closely questioned. He admits having had shooting pains at intervals for several months. They are situated about the middle of the thighs, and at the ankles, and they come and go for several hours at a time. During the last two years the abdominal pain has had somewhat the character of a "girdle pain." He feels when the pain is present as if there is a band about two inches broad lying across the front of the abdomen above the umbilicus. He has experienced no difficulty in walking in an ordinary way, but states that, while formerly, when at work, he was able to walk along a three-inch plank without difficulty, he has been unable to do so since his present illness began, and during the past year he has not attempted to do it, through fear of falling. For the last eight months the act of defæcation has set up attacks of the abdominal pain.

On examination, it is found that there is a slight tendency to stamp in walking. He has also a little difficulty in walking along a straight line. When asked to stand with his feet together and eyes shut he does not lose his balance, but sways a little more than is natural. The deep reflexes are absent, but the superficial ones are quite active. The Argyll Robertson pupil is present.



With regard to the eyes, Dr. Hinshelwood reports that there is "slight hypermetropia of both eyes, and marked hyperæmia in both optic discs, with slight obscuration of the edges, particularly well marked in the right eye."

The treatment adopted up to 29th November was as follows:—Nitroglycerin was given first on the 3rd November, in doses of  $\frac{1}{100}$  gr. thrice daily, gradually increased, until on the 21st he was having  $\frac{8}{100}$  gr. three times a day. Thereafter, sulphate of atropine was given hypodermically,  $\frac{1}{100}$  gr. being given thrice daily. Neither of these drugs produced the slightest effect on the symptoms; and accordingly it was decided to try the effect of antipyrin, beginning with 10 grs. thrice daily, and increasing the dose if necessary.

24th December.—The antipyrin, which has been gradually increased since its commencement on 29th November, has for the last few days been administered in four doses (of 30 grs. each) daily, with the result that the shooting pains in his limbs have disappeared, and the severe abdominal pain has been much mitigated.

7th January 1896.—As nausea and vomiting supervened three days ago, the method of administration of the antipyrin was changed, and he is now having the same quantity daily, but in six doses of 20 grs. each.

15th January.—He feels much better again, the sickness having almost entirely disappeared, the severe abdominal pain being absent, and only a dull aching in the same region being felt, with occasional pains in the legs. Until the antipyrin was commenced he was in great measure bereft of sleep, but now he sleeps soundly.

The interest of this case centres in the question of diagnosis. It will be observed that the patient had been seen from time to time by many practitioners, both in this country and abroad, and no one seems to have had any suspicion of the nature of the disease. This is the less to be wondered at, seeing that the abdominal were the prominent symptoms throughout, and threw into the shade the others pointing to locomotor ataxia. A careful examination, however, left no doubt that this was the disease in question, and that the gastric symptoms corresponded to the so-called "gastric crises" of that affection. For it was found that associated with them were many of the symptoms of disease of the posterior columns of the cord, namely, the ataxy, the planting of the heels on the ground when walking, the lightning pains in the lower extremities, the absence of the knee-jerks, and the presence of the Argyll Robertson pupil. If further proof of the accuracy of the diagnosis is needed, it is to



be found in the relief which has been obtained from the administration of antipyrin in increasing doses,—a remedy which I have found to be almost a specific for the relief of lightning pains in many cases of locomotor ataxia.

It is perhaps not so well known as it ought to be, that the “gastric crises” may for long constitute almost the sole symptoms of the disease. “Such crises,” wrote Charcot, “may appear at the beginning of the disease, and may for long years form, together with shooting pains, the whole symptomatology of the disease. When the ataxia is fully established, and motor inco-ordination has been developed, the gastric crises do not therefore always disappear; often, on the contrary, they are reproduced, with every paroxysm of shooting pain, until the fatal termination.

“Many a time I have seen this symptom diverting the attention of the physician, and causing him to misapprehend the real nature of the disorder. I also have several times fallen into the snare in other days. A notary came from the provinces ten years ago to consult me concerning attacks of cardialgia, presenting the characters which I have just described; he suffered likewise in the extremities from paroxysmal pains, which, however, were not very acute. I was not then aware of the link which unites these different phenomena. The gastric crises have disappeared, but the patient suffers to-day from all the symptoms of locomotor ataxia of the most characteristic kind.

“The first time it was given to me to recognise the true signification of gastric crises occurred when attending a young physician, who, besides these crises, suffered from shooting pains and hydrarthrosis of one of the knees, spontaneously developed (arthropathy of ataxic patients). Motor inco-ordination did not show itself in his case till some months later. The whole of this group of symptoms—gastric crises, shooting pains, and arthropathies—which have no affinity in appearance, become invested with an almost specific character when looked upon in a true light.

“I have also seen gastric crises co-exist with lightning pains, during more than five years, without being accompanied by motor disorders, in the case of M. T. The diagnosis was rendered easy in this case, owing to the existence of incipient atrophy of one of the optic nerves. The opinion which I expressed, almost from the first, concerning the nature of the

case was nevertheless keenly contested by several physicians who visited the patient. To-day my anticipations have been found only too amply justified."

## CASES OF MYELITIS.

CASE 88.—An unmarried man, *æt.* 35, a sailor, came under observation on the 26th January 1881. His father died at the age of 89, and his mother at 47, the causes of death being unknown to him; nine brothers and sisters died in childhood, and two brothers and sisters are alive and well.

Two months before admission, abandoning his sailor life for the winter, he got employment in one of the Govan dry docks, where he had to lie, kneel, or sit on cold iron plates, in order to do his work. In consequence of this he caught a severe cold three weeks ago, which, however, did not lay him aside; but twelve days thereafter, on getting out of bed, he felt a "sleepy sensation" in his feet, and numbness in the middle finger of the right hand, which caused him to stay at home that day. Next morning he attempted to go to his work, but had not gone very far when his knees became so weak that he had great difficulty in getting home; even on leaving the house his gait was like that of a "drunk person." From this time onwards the "sleepy condition or numbness" of his feet spread gradually up to the lower part of his body. The numbness at first complained of in the right middle finger also soon spread to the other fingers of the hand and to the wrist, and three days later the left hand and wrist became similarly affected. For a week prior to admission he experienced great difficulty in swallowing and in speaking, and his breathing was noisy. From the commencement of his illness, his bowels, previously regular, became obstinately constipated; and three days before admission his urine became scanty, high-coloured, and muddy. He always previously enjoyed very good health, with the exception of an occasional cold, and said that he had been as temperate as sailors usually are, only getting drunk while on shore.

On examining him on 1st February, there was complete paralysis of the lower extremities,—so complete that he could not even move a toe,—but only paresis of the upper extremities. He could move his arms, but not with the same vigour as formerly, and he grasped objects somewhat feebly. On using the dynamometer with the left hand, the indicator registered 35, and with the right only 17 kilos.; the muscles responded imperfectly to electricity. But not only was there paralysis of motion, the sensation also was very defective from the toes up to the chest, and in the hands too; so much so that he could only feel considerable

pressure made with the finger or pin-point. The reflex excitability was likewise completely annihilated. But still more serious symptoms than these were manifest, for the breathing was very laboured and noisy. He spoke with difficulty, and in a hoarse whisper, and dysphagia was so great that on attempting to take a drink he was nearly choked, and it was necessary to abstain from feeding him by the mouth. No pain was complained of anywhere, but, on examining the spine, some tenderness was detected over the last dorsal and first lumbar vertebræ. The application of hot and cold sponges to the spine yielded negative results. The temperature remained normal throughout, except that in the first week after admission it rose on five occasions up to or above  $100^{\circ}$ ,—twice in the morning and three times in the evening,—and on the second evening after admission it touched  $102^{\circ}$ . The day after admission his breathing became so laborious and difficult, that for many hours he seemed to be in a dying condition, and he was quite unable to swallow anything.

The symptoms just enumerated pointed to widespread and alarming inflammation of the spinal cord (myelitis), although it was evident that the continuity of the cord was not destroyed by the disease, else we should have had an increase instead of an annihilation of the reflex excitability and reflex spasmodic movements (the spinal epilepsy of Brown-Séquard).

The treatment was commenced upon the 27th of January. On that day he was put upon an air-bed, was kept off his back as much as possible, and the skin over the sacrum, which was red (threatening bed-sore) was sponged frequently with camphorated spirits of wine. A subcutaneous injection of  $\frac{1}{100}$  gr. of sulphate of atropia was prescribed night and morning, and he was fed entirely through the nose by means of a piece of indiarubber tubing, on the syphon principle.

On the 28th January fly-blisters to the spine were commenced. On the morning of this day a narrow blister was applied over the lower cervical and upper dorsal region for an hour; on its removal the skin was found to be only slightly reddened, but by the evening, to our astonishment, most complete vesication had occurred. On the 2nd February a blister was applied over the tender spot on the spine, at the junction of the dorsal and lumbar vertebræ. On the 10th one was applied to the lower lumbar region, on the 12th to the cervical region, and on the 16th over the middle of the spine. In all, therefore, five blisters were applied, on each occasion for an hour, but none of them produced the slightest vesication, with the exception of the first.

On the 1st of February the liquid extract of ergot, in doses of half a drachm every four hours, was commenced, a remedy which, like belladonna and its active principle atropia, is reputed to diminish congestion of the cord.

Finally, on the 7th of March, the sister was directed to have the paralysed parts and the spine rubbed with warm camphorated oil, night and morning. The atropia injections were stopped, but the ergot was continued, and full diet was prescribed.

The following notes, extracted from the Journal, sufficiently indicate the progress that was made :—

“On the 29th January he could move his legs a little, and breathing and swallowing were much easier, so much so that in the evening he took a bowl of porridge and milk by the mouth.

“On 30th January there was no further improvement in the paralysis, but the anæsthesia was not quite so marked. He could also swallow and breathe quite well ; but the bowels were as costive as ever, and the catheter required to be used on account of retention.

“On 31st January there was incontinence of urine ; but next day this had passed off, and the paralysis of the limbs was a little less marked.

“By 3rd February he had decidedly gained, could move his legs and bend the knee-joints to a considerable extent, and could turn himself round in bed. Sensation, too, was much improved, though less so in the right leg and right side of the body than in the left.

“On 6th February the catheter had to be used for the second time, the urine, however, remaining healthy.

“On 9th March it was noted that the improvement continued steadily. The bowels and bladder acted normally, he could breathe and swallow as well as ever, and could move his arms and legs quite freely, and even walk a few steps with support. But he still complained of some numbness, which, however, was limited to the soles of the feet and palms of the hands.

“By the 30th of March all his symptoms were gone, with the exception of some numbness in the anterior part of the soles, where there was a feeling as if a ball was under each foot, and slight paralysis. On testing the hands with the dynamometer, we now found that it registered 75 kilos. on each side. He walked, too, pretty well, but with the knees a little bent. The patellar tendon reflex, tested for the first time, was absent.”

As far as one can judge from the steady progress that has been made, I think we may reasonably expect that his recovery will be as complete as it has been uninterrupted ; and, considering the extreme gravity of the symptoms at the time of his admission, we have reason to congratulate ourselves upon the efficacy of the treatment which was adopted.

It may be interesting to compare this case with a very similar though not quite so alarming one, and which yielded to similar treatment. It is only given in outline.

CASE 89.—This man was æt 38, a tobacco manufacturer, and came under observation on the 28th February 1887. Three days before admission he began to be troubled with an urgent desire to micturate, with inability to pass more than a few drops of urine at a time. This continued all day, and in the evening he was relieved by the catheter. Next morning, on attempting to dress, he found that he was losing the power of his legs. This enfeeblement continued to increase during the day, till by night he was unable to walk. On examination, it was found that the paralysis of the lower extremities was complete, and there was an absence of sensation—as to touch, pain, and temperature—from the knees downwards. The knee-jerks were absent. The bladder was distended with urine, and there was continuous dribbling. His bowels had not been moved for four days. He had a large superficial bed sore, extending over the greater portion of the back below the waist.

His treatment, in addition to attention to the bed sore, and to the bladder and rectum, consisted of the internal administration of liquid extract of ergot, in doses of from  $\frac{1}{2}$  drm. to 1 drm. thrice daily, and the subcutaneous injection of from  $\frac{1}{100}$  gr. to  $\frac{1}{70}$  gr. of sulphate of atropine twice daily.

Under this treatment he soon began to improve, so much so that he was able to leave the Infirmary on 28th May, at which time the following note was taken:—

“Patient now walks about all day. His gait is still a little uncertain, and he complains of a little uneasiness in the lumbar region. The sensation has quite returned, and the knee-jerks are present. His bowels are regular, and he can keep his water, but not for a longer period than from thirty minutes to an hour.”

When last heard of, on the 30th of May, he was practically well.

#### ACUTE ASCENDING PARALYSIS (LANDRY'S PARALYSIS).

CASE 90.—D. A., æt. 52, blacksmith; was admitted to the Western Infirmary at 6 P.M. on 25th October 1895, complaining of general weakness, beginning at the feet, and extending upwards.

The family history, which is very good, has no direct bearing on the case. None of his relations have, so far as he knows, ever suffered from any nervous disease.

Patient does not remember ever having been ill before. He is married, and is the father of a family of nine, of whom three died in infancy, of measles.

Two days before admission he went to his work feeling in his usual health, and worked until night without any special inconvenience. In the afternoon, however, he admits that he felt a dull, aching pain in the region of the lower cervical and upper dorsal spines, which gradually



increased in intensity until after his arrival home, when the application of fomentations completely dispelled it.

On the way home from his work he felt his legs getting powerless, without any loss or diminution of sensation or any pain. After bathing his feet he went to bed, and on the following morning got up to go to his work, only to find himself unable to walk sufficiently well to enable him to go the necessary distance ( $1\frac{1}{4}$  mile). At this time he was quite able to stand upright without assistance, though he was "a bit shaky"; and is quite confident that then his hands and arms were scarcely, if at all, affected. During the afternoon of the day before admission he first felt a sensation of "pins and needles" both in his arms and legs, and about the same time began to experience some loss of power in his hands and arms. Meanwhile his legs were gradually getting weaker, and by the evening he was quite unable to stand without support. Since then he has had slight difficulty in micturition, there being some delay at the beginning of the act, and slight pain in the penis during the whole period of expulsion of the urine. His bowels have been constipated. He has no girdle sensation or lightning pains. There is no history of syphilis, and, so far as he knows, the water supply at home and at his work is pure. He does not work among any metals except iron, and has had no abdominal pain of any kind. He has not recently been taking any drugs, has never had diphtheria, and has not tasted liquor of any kind for fourteen years. There is no history of recent injury or of special exposure to the weather of late. There has been no giddiness, sickness, vomiting, or difficulty in respiration or deglutition.

*Examination on admission.*—Patient is a well-nourished, healthy-looking man, who lies in whatever posture he is placed, being quite unable to shift his position at all.

The lower limbs are quite paralysed, so that he is unable to move even his toes. The loss of power in the arms, though quite distinct, is less. Thus he is unable to raise his arm from the bed, and, even when it is lifted, he cannot retain it in that position; yet he can flex his forearm on his arm fairly well when no resistance is offered, though the slightest touch is sufficient to prevent flexion. He cannot completely extend the wrist, but is able to raise up the hand to a level with the forearm. The grasp of the hands seems equal on both sides, but in neither is there sufficient power to move the index of the dynamometer. The muscles of the neck, face, chest, and abdomen are quite normal in their action. Both in the legs and arms the muscles feel soft, but do not seem to be atrophied.

Neither manipulation of the muscles nor pressure on the accessible nerve-trunks give rise to any pain.

The reflexes, both superficial and deep, are completely absent all over the body, except the cremasteric, which is present, but only slightly so,

and is most marked on the left side. Sensation in the arms is fairly normal, both as regards common sensation and the appreciation of variations in temperature; but in the hands, and especially towards the extremities of the fingers, there is slight dulness of common sensation. In the legs, above the knees, sensation is normal; but lower down there is marked impairment of common sensation and temperature sense, gradually getting more pronounced as one descends, till, on the plantar aspect, and on the outside of the dorsum of the foot, sensation is practically absent. On pricking him with a pin, similar results were found, *i.e.* the sensation was dulled towards the extremities of the limbs, and the legs were more affected than the arms. On the dorsum of the foot he allowed a pin to be inserted without complaining of any pain, merely stating that he felt it.

Examination of the spinal column reveals no tender spot; but, on going over it with a hot sponge, he complains of pain at the junction of the lower cervical with the upper dorsal region, where, however, the skin had been reddened by hot applications prior to his admission to the hospital. At this point even deep pressure failed to elicit any complaint of pain.

The eye presents nothing abnormal, except that the right pupil is somewhat larger than the left; both, however, react quite normally to light and for accommodation. There is no defect of taste or smell. His hearing is impaired, but this is associated with his occupation, and has not become more marked of late. There is no paralysis of the muscles of the palate, and deglutition and phonation go on without inconvenience.

Heart, lungs, and liver are normal.

The tongue is moist and free from fur; bowels constipated; appetite fair.

Urine, specific gravity, 1023; acid; no albumin; slight trace of sugar.

*26th October.*—Since admission patient has been getting gradually worse, so that now (3 P.M.) he can just move his arms, while his abdominal muscles have distinctly lost tone. His breathing is not at present much affected while he lies in dorsal decubitus, but when he is turned on his face he complains of a sense of suffocation. This is not, however, accompanied by any lividity. His speech and power of swallowing still remain unimpaired, but he feels himself gradually getting weaker.

The cremasteric reflex is now gone.

Ophthalmoscopic examination (by Dr. Hinshelwood) this morning showed nothing abnormal.

*26th October, 5 P.M.*—Patient was feeling in much the same condition as when last note was made, up till five o'clock, at which time he

saw and conversed with his son, who noticed that his father's voice was hoarse. Thereafter he drank about half a pint of beef-tea, without any apparent difficulty.

About 5.15 p.m. the nurse in charge of the ward noticed that he was looking somewhat livid, and that his respirations were laboured. When seen a few minutes later, he was livid and apparently dying. None of the thoracic muscles were acting at all, but some of the muscles of the neck were acting in a feeble manner. The diaphragm was descending slowly, and only very slightly. There was no facial paralysis.

The pulse was full and strong, as it had been all along.

Patient was quite conscious, and answered questions intelligibly; but was unable to speak above a whisper, and, as he expressed it, he felt himself hoarse. He died at 5.30 p.m. His respiration decreased in frequency and in force, and his pulse became gradually weaker, but continued for about half a minute after the last respiration.

No post-mortem examination was permitted.

#### AMYOTROPHIC LATERAL SCLEROSIS.

CASE 91.—J. L., æt. 15, a grocer's salesman; was admitted into Ward 11 on 2nd November 1894, complaining of weakness of the hands, legs, and back, of over four months' duration.

The family and previous personal history are unimportant.

His present illness appears to date from the Queen's birthday of this year, for on that day, when out in a boat, and exposed to a hot sun, he fell down, and, though conscious, was unable to rise. When the boat reached the shore, about ten minutes later, he was assisted to rise by his companions, and was able to walk with some difficulty. As far as can be ascertained (the patient is not reliable in his answers to questions), there was no vomiting, and he remained conscious throughout.

Some weeks later he began to feel pain in the lower part of the back, and weakness above the shoulder-blades. His work was arduous at this period, and loads had frequently to be carried on the head. Weakness in the legs, with some tremor and stiffness on exertion, was followed by inability to carry parcels, which he would drop on the street now and again. Occasionally, after stooping, he had great difficulty in assuming the erect posture without assistance. Attacks of vertigo appeared, which lasted sometimes for an hour, and (he states that) a haziness of vision now first appeared; and also, about this period of his illness, he first noticed a change in the appearance of the hands and arms.

The sequence of events was very difficult to get at correctly, a leading question being seized upon with avidity, and answered in the

way he thought would oblige the questioner. The approximate order now given is the result of repeated cross-questioning :—

1. Weakness of the muscles of the back.
2. Paresis of the lower extremities, with tremor, and some rigidity on exertion, and occasional spasms.
3. Paralysis of the upper extremities.
4. Paralysis, wasting, and tremor of the hands and forearms.
5. Paresis and wasting of the shoulder muscles, deltoid, pectoral, and scapular muscles.

In giving the state on admission, it will be well to commence with the lower extremities.

The legs are thin, but the patient denies that they are more so than they used to be. Walking is not much impaired, objectively perhaps not at all, although there is some tremor and rigidity, as noted above. The patellar reflex is greatly exaggerated on both sides, and ankle-clonus is readily obtained on the left side, less so on the right.

The trunk is thinly clad with flesh, the shoulders droop, and there is wasting in the pectoral, deltoid, and scapular regions.

The upper arm is thin, but it would not be easy to say that the biceps is actually wasted. The greatest objective change is in the hands and forearms, the former having a claw-like appearance, and exhibiting distinct tremor when held out. The thenar and hypothenar eminences are much flattened; the thickness of the palm is diminished by wasting of the interossei muscles; the tendons, both flexor and extensor, are prominent. Deficiency of muscle padding between the thumb and index finger is especially noticeable.

The first phalanges, with the exception of the index, are over-extended; the second and third are bent towards the palm, especially those of the index. None of the fingers are actually pressed into the palm. The flexor and extensor surfaces of the forearm are flattened; the dynamometer cannot be grasped, so that what power there is cannot be registered. The finger, wrist, and forearm tendon reflexes are all quite obviously exaggerated. With the exception of some stiffness of the fingers, there is no rigidity of the upper extremity, nor has there been any spasm. Reaction of degeneration is present in the upper extremities only.

Regarding cutaneous sensibility and superficial reflexes, there is a degree of numbness of the hands complained of; but this is the only instance of subjective alteration. The surface reflexes are diminished, tickling the sole produces no contraction, nor can the cremasteric or abdominal reflexes be obtained.

There is some paresis of the internal rectus of the right eye, which, if recent, may account for the haziness of vision complained of.

Lastly, must be mentioned some negative points. The tongue is not

tremulous, nor is there any alteration of speech. Answers to questions come out clear and sharp, albeit often untrue. There is no alteration in the appearance of the ocular fundus, nor is there the slightest nystagmus. None of the symptoms of bulbar paralysis are present.

Treatment consisted in the daily application of the continuous current to the spine. The patient was dismissed practically *in statu quo* on 28th December 1894.

#### SPINAL SYMPTOMS CONSEQUENT UPON CARIES OF THE VERTEBRÆ.

CASE 92.—A. G., female, æt. 10; was admitted on 16th November 1893, after a week's stay in Professor Buchanan's wards. Her complaint was of weakness and stiffness in the legs.

In the third week of January 1893, she had a severe attack of enteric fever. She recovered slowly, and was sent on the 8th of May to a Convalescent Home at Largs. While there, about the end of May, she fell on her back on some bricks, a week after which her present symptoms set in. The first of these was pain in the spine between the shoulders, followed later by pain in "the small of the back" and in the left shoulder. These pains were supposed at the time to be rheumatic. She returned from Largs on the 1st of August, when her parents thought her not so well as when she went there. She then complained greatly of pain in the upper dorsal and lower cervical spine, these parts being very tender on pressure. She also had pains in both shoulders, especially the left, and they at times shot down both arms, causing her to cry out. Her power of walking gradually grew less, the legs becoming weak and stiff. Nine weeks before admission, a swelling was observed above the left iliac crest. There was throbbing pain in it, and as it did not improve, she was sent to the Surgical Wards on 8th November. While there the swelling did not increase in size, and was painless. She was therefore transferred to the Medical Wards.

Examined on admission, the skin was found to present a slight roseolar rash, fading on pressure. She lay in bed in a somewhat rigid posture, moving very little. She perspired freely. The lower limbs were found to be very stiff and rigid, and ankle-clonus was distinct on both sides. The knee-jerks could not be elicited, probably owing to the rigidity. She could not stand with her heels together, even with the eyes open, and in walking had to be supported on either side. It was then observed that she raised the feet a good distance from the floor, and kept them widely separated. She has never had involuntary spasms of the legs, but at times voluntarily drew them up, on account of shooting pains in them. Owing to the pain the head was held very stiffly, and the



movements of the neck were limited, especially in a backward direction, but also laterally. Pressure upon the spine gave rise to pain over the sixth and seventh cervical vertebræ, and also over the lumbar vertebræ. There was also a fulness above the left iliac crest, where pressure gave severe pain. Her general health seemed to be good. She was well nourished, and had been growing stouter during the month before admission. The urine was normal, but for a short time after admission there was incontinence.

She was put upon  $\frac{1}{2}$  drm. of syrup phosphori three times a day, and was ordered absolute rest on her back. This was the sole treatment. Under it the symptoms improved one by one. Five months ago the shooting pains in the legs had ceased, and a month later the pain in the back disappeared. Three months ago the ankle-clonus could no longer be obtained. At the same time, the iliac swelling gradually diminished in size, and the rigidity began to grow less. Two months ago pain set in in "the small of the back," and down the left leg, but had quite disappeared in six weeks. She has been getting up for about a month.

Examined upon the 24th of May 1894, before she was dismissed, it was found that ankle-clonus had completely disappeared. The knee-jerks were still absent, although rigidity was gone. She could now walk without assistance. In doing so she swayed slightly from side to side, and the right foot had a somewhat stamping tread. The feet were well turned out, and kept somewhat apart. She could walk backwards without difficulty, but could not keep to the line of a single plank, and in turning rapidly she staggered. When standing with her heels together and her eyes shut, there was considerable lateral oscillation.

Her general health has been good throughout, and her temperature has always been normal.

#### CASE OF PSEUDO-HYPERTROPHIC PARALYSIS.

CASE 93.—P. B., a boy, æt. 8; was admitted on the 9th May 1894, complaining of weakness of the legs, of about two years' duration. The family history had no bearing on the case.

His mother says he never was a good walker, though he was a strong child, and began to walk when ten months old. Two years ago he had measles, and has not been strong since. He went to school at that time, and since then the defect in his gait has become much more noticeable.

The first symptom observed, two years ago, was that he was very apt to fall, and had considerable difficulty in rising. From that time also there was a tendency to walk on the toes. He began, too, to find

it hard to go upstairs, and to do so he always put the right foot first, and dragged up the other after it. He can run very little, and does so on his toes. His mother has noticed that the calves of his legs have been increasing in size, but at the same time becoming softer than formerly. She has not observed any difference in the arms, which she thinks are not weaker than they were.

On examination, the boy is seen to be rather emaciated, but the calves of the legs are decidedly prominent. They are equally enlarged, and measure  $10\frac{3}{8}$  in. in the widest part (while the upper part of right thigh measures  $11\frac{1}{2}$  in.; left thigh, 11 in.). The superficial reflexes are normal, but the knee-jerk is absent in both legs. As tested by faradism, the solei and gastrocnemii are found to be normal, while there is no reaction in the extensors of the knee or flexors of the hip. In the other muscles of the body the reaction is normal but feeble. This is probably due to wasting.

While he walks, a very marked lordosis is observable, the shoulders being thrown far back, and the lumbar curve greatly exaggerated. The gait is waddling, the upper part of the body swaying from side to side, and there is a distinct tendency to walk on the toes. When laid on the floor, he rises in the characteristic fashion,—first rolling on to his face, then getting on all-fours, and finally climbing up the thighs.

Mentally he seems to be somewhat deficient. He has rather a vacant look, and is slow to understand and to answer questions.

The temperature has been normal since admission. The urine is pale, neutral in action, of specific gravity 1005. It contained no albumin until 5th June, when a trace of it was found.

He was treated by massage and faradisation, and the administration of a tonic containing 2 drms. of tinct. nucis vom. and  $1\frac{1}{2}$  drms. of liq. arsenicalis in a 6-oz. mixture. Of this, 1 drm. was given thrice daily after food. He left the hospital shortly thereafter, being practically *in statu quo*.

#### CASE OF MULTIPLE NEURITIS.

CASE 94.—J. M'L., æt. 14, a coal miner; was admitted to Ward 11 on 6th September 1895, complaining of loss of power in the arms below the elbows, and in the legs below the knees. These symptoms appeared seven weeks before admission.

No light is thrown on the case by the family history.

Previous to the onset of this illness, he had always been healthy, except for the usual illnesses of childhood, including scarlatina and measles. He looks a healthy, well-nourished lad, but is very tall and heavy for his age (height, 5 ft. 8 in.; weight, two months ago, 10 st. 7 lb.). At 11 years of age he left school, and commenced work in a

pit,—work which involved much stooping, occasionally in damp places. No accident has ever happened to him, and he is of temperate habits.

The illness commenced seven weeks previous to admission, with numbness of the finger-tips, spreading to the hands and forearms, and almost simultaneously affecting the toes and feet, associated with a feeling of weakness and slight pain, such as is apt to occur after too much exercise. This weakness, which principally affects the arm and leg below the elbow and knee, has gradually increased up to the time of admission, and three weeks after its onset necessitated his giving up work. For the last fortnight manipulation of the muscles in the arms and legs has caused pain.

A short time ago—whether prior to the onset of symptoms or not he is unable to recollect—he attended a doctor for slight sore throat. (There was no difficulty in swallowing at any time, nor is there any reason for supposing that it was diphtheritic.)

Prior to this illness, neither his work nor play were such as to call for extreme exercise of the muscles, nor had he been specially exposed to cold or wet. He is temperate in his habits, is not aware of having been feverish since the illness commenced, nor does he know of any impurity in the drinking water at his home, and he had not been taking any kind of medicine. Although his growth had been very rapid for two years, “growing pains” have never troubled him. He is not aware of any loss of flesh, and the appetite is much as usual.

*Examination of the upper extremities.*—The muscles are distinctly flabby. The thenar and hypothenar eminences are soft, and there is atrophy of the interosseous muscles, as well as of the extensors of the forearm. The fingers can be abducted from the middle line, but adduction is imperfect. The whole limb appears to be paretic, but the weakness is most marked below the elbow. Although wrist-drop is absent, the extensor muscles seem to be the weakest. The dynamometer grip is 5 kilos. in the right hand, 0 in the left.

The temperature sense is normal, but there is slight analgesia on the dorsal aspect of the fingers, hands, and lower part of the forearm. In addition, anæsthesia of the tips of the fingers is present; he cannot pick up a small object, such as a pin, without difficulty, and cannot hold a pen properly.

There is no triceps reflex, and only a faint wrist reflex in either arm.

*Examination of lower extremities.*—Atrophy of the lower limbs is not marked, but the calf muscles are flabby, and the extensors of the toes are atrophied. There is distinct paresis of the legs, especially of the extensor muscles, as shown by the foot-drop and consequent tripping as he walks. The gait is very unsteady. He cannot raise himself on

the toes. There is slight anæsthesia and analgesia over the dorsum of the foot, and along the inner surface of the lower two-thirds of the leg.

On manipulation of the legs, he complains of some pain, but pressure over the nerve-trunks does not materially increase it.

No deep reflexes are obtainable.

*The trunk.*—The superficial reflexes are present.

*Equilibration*, with the eyes closed and feet together, is impossible.

*Treatment and progress.*—Massage and the application of the continuous current were ordered, with strychnine internally.

On 28th September, although there was some improvement in the grasp and in the finger movements, there was distinct paresis of the muscles above the elbow as well as those below; and the appearance of the supra- and infraspinatus regions was suggestive of atrophy.

On 9th October there was slight improvement of the grasp in the right hand, but still defective tactile sensation at the right finger-tips. Other parts of the right hand and arm and all the left had practically normal sensation. He was conscious of slight improvement in walking. The condition of the muscles was very much as before.

On the 15th October, Dr. Love examined the muscles electrically, and was of opinion, both as regarded polar changes and the slow character of the contractions obtained, there was distinct evidence of partial reaction of degeneration.

Since this date he has slowly but steadily improved, but, as he left the Infirmary, the final result cannot be stated.

### CASES OF RAYNAUD'S DISEASE.

CASE 95.—H. M., school-girl, æt. 8, was admitted on the 17th April 1895, with a history of periodic swelling and discoloration of the hands for four years, and of the feet for four months.

The family history is quite satisfactory, so also is that of the child herself, who indeed, but for the affection of the extremities, looks a model of healthy and lively childhood. When 4 years of age she had measles, and made a good recovery. Two months later her mother noticed swelling and discoloration of the hands when the child came home from school. The three centre fingers of each hand were cold, swollen, and red; and, as far as can be gathered from the somewhat scrappy history obtained, there were tingling sensations and some degree of pain associated with this condition, which lasted often for the rest of the day, but, except for slight puffiness about the fingers, was absent next morning.

Since then the swelling and discoloration during the attacks have become more marked, and she has sometimes cried out with pain. The

calf of the left leg and the left cheek have been occasionally affected, and about four months ago the toes became subject to similar attacks.

When she came into hospital nothing was to be seen except slight swelling of the phalanges of both hands; but after she had had a bath the hands became swollen and red, and the fingers bluish red, as if affected with chilblains. Next morning (18th April) the discoloration had gone.

On the following afternoon (19th April) another attack came on, and was carefully noted as follows:—

“Both hands are red and swollen, and the finger-tips are purple,—‘local asphyxia.’ The discoloration fades away to the normal, about 2 in. above the wrists. The toes are affected in a slighter degree. Pressure on the palm or dorsum causes blanching, which persists for an abnormally long time. The hands and feet are very distinctly cold compared with other parts, and feel boggy to the examining finger. No other parts but the hands and toes are affected at present. The patient, who is of a distinctly heroic temperament where pain is concerned, will not admit that there is any pain in the parts, but only numbness, coldness, and tingling. Elevation of the arms and rubbing the fingers have no effect on the condition.”

*Local syncope* has never been noticed between the attacks. Some thickening of all the tissues, however, persists. Sensation appears to be practically normal.

Certain negative points, if they may be so called, require enumeration:—

1. There is no irritability of temper. She is the best child in the ward, and is particularly amiable in disposition.

2. The heart is apparently normal. Pulse, 80.

3. Urine is normal; no albumin, sugar, or abnormal blood derivatives.

4. Temperature is normal.

5. There is no alteration visible in the blood corpuscles, and the percentage of hæmoglobin is normal.

6. There is no constriction of the retinal arteries, such as has been described.

7. As mentioned previously, the general health is excellent.

*Treatment* consisted at first in general tonic régime, and, after observation for some days, a daily application of the continuous current (20 Leclanché cells) was commenced. The positive pole was applied over the spine, and the hands or feet placed in salt water along with the negative pole.

*Progress.*—By 12th June there seemed to be some improvement, both as regards frequency of occurrence and severity of the attacks. On 31st August she was sent home. There has been no further



development in the case, and little could be stated as to any marked improvement. Latterly, whether or not owing to the mildness of the weather, the attacks of local asphyxia have been less frequent.

CASE 96.—J. R., schoolboy, æt. 5; was admitted to Ward 7 on 27th July 1895, with a history of intermittent discoloration of the ears, the feet, and the hands, for two years.

The family history is unimportant, and the patient's only illness, prior to the present one, was an attack of some acute lung disease when 2 years old.

About two years ago, during the winter, his mother first noticed a bluish discoloration of the extremities, which she supposed was due to the cold weather. But the condition has persistently returned since then at irregular intervals, in summer as well as in winter. She describes the blueness as "coming and going" in the fingers and toes, sometimes also affecting the tips of the ears, and lasting usually for a few hours. She is not very sure whether it has ever been painful. She has not noticed any unusual pallor of the parts prior to the attacks, nor that they are influenced by the use of hot or cold water. None of the child's relatives have had any similar disease.

When examined after admission, there was a faint blush only to be seen on the fingers, which had a puffy appearance, and felt thickened. The toes and the outer borders of the soles were slightly livid. Pressure with the fingers caused considerable pain, and led to blanching, which disappeared more slowly than normal. The following day the ears were quite livid, the hands and toes normal. There was no pain in the discoloured area.

Treatment consisted at first of cod-liver oil and thyroid feeding. The latter disagreed, and was stopped, when extract of malt was substituted.

About six weeks after admission, interstitial keratitis developed. This was treated locally, and in due time began to improve. About the end of September there was threatened gangrene of the tips of both ears, which, however, ended in a slight superficial slough of epidermis on the right ear. On the 21st October nitroglycerin was commenced,  $\frac{1}{400}$  gr. twice daily. No constitutional effects resulted. On 23rd October the fingers, toes, and ears were unusually livid, and he was given  $\frac{1}{100}$  gr. of nitroglycerin. Within twenty minutes of its administration the skin was quite pale. Since then this dose has been repeated when the attacks came on, but has failed to have a similar good effect. The nitroglycerin having failed to afford relief, he was now about to be treated electrically, but his mother removed him from the hospital.

## SPASM OF THE DIAPHRAGM.

CASE 97.—W. M., æt. 43, fireman; was admitted 25th February 1887, complaining of weakness of the lower extremities, especially of the right, of seven months' duration.

His father is alive and well; his mother died at 40, of British cholera; one of his sisters, of whooping cough; and one, æt. 40, of "cramp of the stomach."

From infancy he has been subject to attacks (about to be described), coming on sometimes three or four times in the course of a day, sometimes at intervals of three or four weeks. They most frequently occurred at night, especially after partaking of large draughts of cold water before going to bed, and were also liable to be induced by excitement.

During the last seven months the general weakness of the body which accompanies each paroxysm has become permanent in the lower extremities, but the paresis is slight, and does not prevent him from walking, but renders him unsteady, and liable to fall on stepping on a stone, etc.

Each of the paroxysms alluded to sets in with a general feeling of weakness, sometimes so great as to prevent him from moving, although he remains quite intelligent, and answers questions quite rationally. This is accompanied by an indescribable sensation ("feeling of heaviness") at the pit of the stomach, with inability to draw a deep breath, or to cough, but without pain or dyspnoea. The attack lasts from two or three minutes to a quarter of an hour, and he often perspires at its close. Shortly after the attack the general weakness in great measure subsides, except latterly in the lower extremities, as above mentioned.

But the most remarkable feature in the case is that which relates to his own children. He has had eight, all of whom are alive. One of his daughters has enjoyed good health, one has nearly lost her eyesight (from cataract?) since childhood, one son has been an epileptic since childhood, and is an inmate of the Larbert Institution for Imbeciles; while the remaining five—four daughters and one son—have been subject since childhood to paroxysms identical with those experienced by himself.

The similarity of the attacks in the children is manifest, from the account given by his son, æt. 22, of those to which he has been subject since childhood.

In describing these seizures, the son states that he feels a peculiar creeping sensation arising in the region of the stomach, and slowly ascending towards the cardiac area, where the feeling is one of spasm, generally increasing in intensity till it reaches its maximum, when it causes breathlessness for a minute or so. During this time he is able

to breathe gently, but cannot take a deep inspiration. This condition soon passes off, and the duration of the spasm is much shortened by eating a morsel of bread.

In addition to, and in association with the above symptoms, the legs are simultaneously subject to spasms, starting in the thighs and descending to the calves of the legs, the knee-joints get stiff, and he is unable to walk when the seizure is at its height. These attacks of spasm last for about five minutes. During some of the attacks his eyes stare so much, that he has frequently been asked what he was staring at. On rare occasions his arms have been the seat of similar spasms.

These seizures come on suddenly. He is perfectly conscious all the time the attack lasts, but during its continuance is quite unable to move. They are warded off by exercise or active movement. They were more frequent in childhood than in later years.

The fits in the other children are of a similar description.

From the history it was inferred that these paroxysms were probably of the nature of spasm of the diaphragm, and although not epileptic, nor belonging to the same species of disorder, might be regarded as first cousins to that disease. And in this connection it is interesting to note that one member of the family has been epileptic since childhood, and that the treatment applicable to epilepsy has already produced a remarkable amelioration of the spasmodic seizures.

The treatment consisted of—

R	Potassii bromidi	}	.	.	.	āā	̄iv.
	Ammonii bromidi	}	.	.	.		
	Potassii bicarb.	.	.	.	.	̄iss.	
	Tinct. calumbæ	.	.	.	.	̄iii.	
	Aquæ	.	.	.	.	ad	̄xii.
							<i>Solve.</i>

*Sig.*—A tablespoonful thrice daily, along with faradisation of the lower extremities.

The great improvement which has taken place already (fourteen days), and which consists in the subsidence of the paresis of the lower extremities, and marked diminution in the frequency and severity of the paroxysms, leads one to hope that, by perseverance, and increase in the dose of bromides, they may be permanently arrested, although he did not remain long enough in hospital to test the accuracy of this opinion.

#### CASES ILLUSTRATIVE OF TETANY.

CASE 98.—A. M., a tolerably healthy-looking boy, æt. 9; was admitted 10th May 1879, complaining of a spasmodic affection of the

arms and hands, specially of the thumbs, and also of the legs. The patient seems to have had perfectly good health till he was 3 years old, when, without any apparent cause, the spasms began, and they appear to have affected both the arms and legs at that time just as at present, but they were not quite so continuous, on some days being absent: the whole attack lasted only a fortnight. The illness was then supposed to be possibly connected with the irritation of the teeth. After this he seems to have had slight attacks off and on for about a year. A medical man who saw him at this time appears to have regarded the illness as being probably due to an affection of the glands of the bowels, this opinion being based on a tendency to diarrhœa, and on his general state. From that time, up till about a year ago, he had only slight attacks, lasting a day or two at a time, but it would appear that he was seldom more than six or seven months free from the attacks altogether, and his mother thinks there was a tendency to their occurrence in the winter time. About January 1878, he had one lasting about a week, the spasms never going quite away during that time, and with frequent exacerbations. Since then, up till the beginning of the present attack, he has had frequent spasms of short duration, occurring specially, the mother thinks, in the morning when he awoke, lasting for about an hour or perhaps two hours, and then going away not to return for a day or two.

The attack from which he was suffering when admitted had continued without any complete intermission for about five weeks, and seems to be about the longest attack that he has had, but the mother did not think it the most severe. All of these, from the very first, have been marked by the occurrence of severe exacerbations, characterised by extreme bending of the hands, and associated with such pain that he has frequently cried out. When these occur they last for perhaps five or ten minutes at a time, to recur after an interval of a few minutes, and in this way have been known to go on for the greater part of a day. It would appear that in the beginning of the attacks the pain is a more marked feature. So far as the mother can make out, their occurrence is not connected with disorders of the stomach, neither does excitement seem to induce them.

When admitted it was found that the muscles of the upper and lower limbs were in a state of continuous spasm, the thumbs being drawn across the palms of the hands, the fingers flexed and drawn inwards, and the hands flexed at the wrist. The spasm could also be traced upwards, and the forearm was rigidly flexed at the elbow. On using force the rigidity could be overcome, but this seemed to cause considerable pain. For a few minutes after the spasm was overcome in this way, the limb seemed comparatively flexible, but the spasms very rapidly returned. On the other hand, a gentle resistance to the spasm



rather increased its violence. It was noticed also, that on getting the boy to use a spoon, which he could usually do pretty well, the spasm appeared to relax a little, and this applied not merely to the hand using the spoon but to the hand on the other side also. In addition to the upper limbs, spasm was found to affect the legs to a very marked extent, so much so that he was unable to stand; but, so far as could be made out, the muscles of the trunk were not involved; nor was there the least rigidity of the jaws or neck. It was observed that during sleep the spasms relaxed. After admission he had only two severe exacerbations.

He was put under the influence of bromide of potassium, given every three hours, at first in 10-gr. then in 15-gr. doses, and it was noticed that, after the larger doses, the patient slept a great deal, and could at times only be roused with some difficulty. He was also kept in bed, and soon after admission was ordered a small quantity of wine. The improvement in the spasms seemed to become more pronounced after he was under the larger doses of bromide, and by the 18th May it was found that there was only a slight remnant of the spasm in the hands, while on the following day the muscles of the hands and arms seemed to be quite natural; but upon getting the boy to stand there was still a great deal of awkwardness in the use of the lower limbs, especially of the right leg. His condition, however, went on improving, and by the beginning of June he was able to walk almost perfectly well, although there was a slight tendency to drawing up of the heels, apparently from spasm of the gastrocnemius, but this can scarcely be recognised now.

Regarding the family history of the patient, there is nothing special to note. No other member of the family has ever been affected, and there is no account of any nervous disease in the family; none of them have had rheumatism or rheumatic fever, nor does there seem to be any history of rheumatism in the family of either the father or mother. The child does not appear to have had any other illness except measles.

CASE 99.—C. B., æt. 16, a weaver; was first admitted on June 1878, complaining of pain, swelling, and rigid contraction of the joints in a state of flexion, especially of the wrists, fingers, and ankles, of a year and a half's duration in all, and coming on in paroxysms of two or three days' duration generally, and at irregular intervals. Her family history is fair, although her father died of some chest affection at the age of 42, and, with the exception of her paternal grandfather, who died of epilepsy, there is no evidence of a tendency to nervous ailments in the family.

She always enjoyed good health till nearly three years ago,—autumn of 1876,—when she was seized with violent diarrhœa, which continued for three months. Two or three days after the diarrhœa ceased, she



was seized with the first paroxysm, such as she had at the time of her admission, which will be described immediately, and which lasted for about a week. She had about twenty attacks in all, coming on at intervals varying from a couple of weeks to three or four months, each lasting from two or three days to a week or more. At the time of her admission she was in the midst of one, which had set in five days previously. At the beginning of an attack she had a feeling of numbness in her fingers, a few minutes after which her thumbs were suddenly drawn to the middle of the palms, and the fingers quickly closed over them. The wrists, too, became flexed and rigid, as well as the ankles, the feet being adducted. The elbows, shoulders, and knees were also involved, though to a much less extent, and there was some implication of the muscles of the jaw, as she could not open her mouth at all at the beginning of the paroxysm, and she felt as if her tongue were drawn back whenever she attempted to put it out, so that she was unable to speak. At the commencement of the attack, too, she was unable to swallow, and there was marked dimness of vision; there was likewise a tremulous condition of the eyelids, especially the upper lids. There was considerable swelling over the joints which were most affected, and the skin covering them was red and glazed, and felt distinctly hot to the hand. The joints were also the seat of much pain, and this was increased on any attempt to overcome the spasm; but if the flexion was overcome, the pain was for the time relieved, returning again immediately if they were allowed to contract again. There was no anæsthesia or hyperæsthesia, but manifest want of power in the flexor muscles; for, although she appeared to close her hands pretty well, she was unable to move the index of the dynamometer. Since the first attack the joints affected have never been so supple as formerly, and she has therefore not been able to walk or use her hands so well as before; and ever since the beginning of her illness the right thumb has been more or less adducted, and its metacarpo-phalangeal joint has consequently become thickened. In the intervals between the attacks the bowels were always loose, and a paroxysm comes on a day or two after the diarrhoea ceases. During the attacks she was quite unable to walk, and complained of great pain in the ankles if she attempted to do so, as well as of stiffness, which, along with the fact that the feet were adducted, fully accounted for her helplessness. Compression of the limb did not intensify the spasm; on the contrary, it seemed rather to have the opposite effect. No relief was experienced on plunging the affected parts into cold water, and the rigidity remains during sleep. Before the commencement of her illness she was plump and strong, but when admitted she was weak and emaciated. There was no tenderness of the spine, nor any evidence of disease of any organ, though she had never menstruated.

Under the influence of rest and an effervescing mixture containing iron, strychnia, and bismuth, she improved very much, and was dismissed nearly well on 27th September.

She was readmitted 9th December, on account of a recurrence of the paroxysms, which only remained away a short time after her dismissal. The attacks, however, were not nearly so severe as formerly, and were limited to the fingers, wrists, and ankles. On this occasion she was treated with bromide of potassium, 30 grs. thrice daily, which had speedily the effect of entirely arresting the paroxysms.



DISEASES OF THE CIRCULATORY  
SYSTEM.





## I.

### ILLUSTRATIONS OF THE VARIABILITY OF THE SYMPTOMS OF ANEURYSM OF THE ARCH OF THE AORTA.

It is exceptional to find all the classical symptoms of a disease present in any one case. This is especially true of aneurysm of the thoracic aorta, mainly on account of the varied anatomical relationships of its different segments. The two classes of symptoms—the direct (physical signs) and the indirect (pressure) symptoms—are usually met with in combination, but not unfrequently the one class predominates over and even entirely replaces the other. The physical signs are generally most pronounced when the ascending and first part of the transverse portions of the arch are involved, while the pressure symptoms are, as a rule, more obvious when the left and deepest portion is implicated; and when the aneurysm springs from its posterior wall and projects backwards, there may be a total absence of physical signs. Let me therefore cite a few illustrations of these different types; and first of all take a typical case, in which both classes of symptoms were combined.

CASE 100.—A man, *æt.* 34, was admitted into the Western Infirmary. He was a joiner, and required frequently to lift heavy weights, but his diet had always been good, and his habits temperate; he had never had syphilis, and had uniformly enjoyed good health until three years before admission, when he began to complain of palpitation, especially on exertion. Twenty-one months after this, while attending his wife, who was laid up with fever, he experienced for the first time a sharp pain in the left breast, which extended to the left shoulder and down the arm. It was then found that he had a double murmur at the base of the heart, with dilated hypertrophy of the left ventricle. Under treatment he improved considerably; but three months before admission he observed that he was becoming hoarse, and he commenced to experience attacks of dyspnoea, coming on for the most part when speaking or walking rapidly, and giving rise to a feeling of suffocation, referred to the

region of the larynx. He had also a short dry cough, unaccompanied by expectoration. About five weeks before I saw him, a pulsating tumour was detected by a medical man in the jugular fossa, which was preceded for a couple of weeks by "a beating above the breast-bone." When first discovered it formed a well-marked prominence at the root of the neck, about the size of a pigeon's egg, and it was tender to the touch. When it made its appearance the palpitation and pains in the chest subsided, but some difficulty of swallowing began to be experienced, and he had the feeling "as if the food was going the wrong way."

On uncovering this man's chest, a swelling was observed at the top of the sternum and inclined a little to the left side, a swelling which was not very prominent, but which occupied an area equal to that of a hen's egg. It pulsated very distinctly, and, on palpation, was found to be very soft, the seat of expansion as well as of pulsation and of "purring tremor." There was marked dulness on percussion, not only over the tumour but also over the upper part of the manubrium sterni, and extending a little into the subclavicular region. On auscultation, a loud, rasping, systolic murmur was heard, whose maximum intensity was over the swelling, but it was audible over the whole of the chest, in the vessels of the neck and arms, especially on the right side, and in the abdominal aorta, but not in the femoral vessels. The heart was displaced downwards and to the left, and the left ventricle was hypertrophied and dilated, the apex beat being  $3\frac{1}{2}$  in. below and  $1\frac{1}{2}$  in. to the left of the nipple line, and the impulse heaving in character and diffused. There was not much difference in the pulses at the wrists, but the pulsation of the right carotid was much stronger than that of the left. There was evident degeneration of the coats of the blood vessels, as the superficial vessels pulsated visibly, were tortuous, firm, and corded, a condition which doubtless favoured the development of the aneurysm.

This patient died two months after admission, the aneurysm having ruptured internally. On post-mortem examination, a dark, prominent mass was found to be protruding from the skin, immediately above the suprasternal notch; its surface was very irregular, and it was evidently composed of coagulated blood. It was found to communicate by an aperture in the skin, measuring 2 in. from above downwards and 1 in. across, and about the level of the thyroid gland, with an aneurysm of the aorta. The heart was very much enlarged, the left ventricle in particular being hypertrophied and dilated, and it weighed 22 oz. Numerous calcareous plates were found in the aortic arch, which was somewhat wider than natural. A very large sacculated aneurysm sprang from the upper surface of the transverse portion of the arch, with which it communicated by an aperture large enough to admit two fingers, and situated just before the giving off of the large vessels, none

of which were directly involved in it. The aneurysm was somewhat oval in shape, its long axis directed from above downwards, measuring between 5 and 6 in.; it lay in front and a little to the left of the larynx and trachea, which it forced slightly backwards and to the right, but it did not seem to affect these parts seriously. Although the large vessels were not involved in the aneurysm at their origins, the left carotid and subclavian were found to be firmly adherent to, and in part embedded in, the walls of the sac, while the innominate was only very slightly attached to it. The aneurysm was almost completely filled with old and recent clots, and at one place, almost in the middle of the sac, there was a very distinct stratified coagulum, which was much paler and firmer than the rest. The other organs of the body were healthy.

In some cases of aneurysm the effect upon the pulse is very striking, of which we have a good illustration in

CASE 101.—George H., a soldier, æt. 34, who was admitted into bed 5, Ward 2, on 18th August 1881, complaining of a prominence of the anterior chest wall, with slight pain and dyspnoea on exertion. In early life he was a printer, but at the age of 18 he enlisted, and spent all the time of his service in India, without suffering from the climate; but he frequently had venereal disease, and in 1872 was laid up in hospital with syphilis. Until two years before admission, too, he had been very intemperate in his habits. In 1878, without apparent cause, he began to complain of rheumatic-like pains in both shoulders and down the left arm, which continued with varying severity for about a year. In the month of May of the following year, while still suffering from these pains, he fell upon his left shoulder and was severely shaken, and always afterwards felt a soreness across the front of his chest. In March 1880 he began to be troubled with increasing palpitation and breathlessness on exertion, for which, as well as for the pain in his chest, he was put upon the sick list. On admission to the military hospital his attention was called to the fact that his left clavicle was dislocated, which he himself had not noticed before, and which he did not think was the immediate result at least of the fall. At this time it was also observed that there was a slight swelling beneath the clavicle at the left side of the sternum. During his residence in the hospital a weakness in his voice, which had commenced several months before, steadily increased, until at one time he was scarcely able to speak above a whisper. Under treatment he slightly improved, and in the month of October he was sent home, and entered Netley Hospital in December. During his stay there his voice was in great measure restored, and he thought that the tumour became more localised but more prominent. At this time, too, he was occasionally seized through the night with a choking sensation, which,

however, soon ceased to trouble him; and occasionally his eyesight became dim for an hour or two, so that he became almost blind. At this period also the palpitation was very distressing, and there was marked heaving of the front of the chest; but when he left the hospital four months afterwards it was comparatively slight, although he felt so weak that he was almost unable to walk. After this he improved slowly in strength, and the palpitation only troubled him on exertion; but short, tickling cough set in, and the expectoration was frequently streaked with blood. On examining this patient, the physical signs of a large prominent aneurysm on the top of the sternum, on which I need not enlarge, were discovered; and, in addition, there were well-marked indirect symptoms. The pain in the left shoulder and shooting down the left arm, which was especially marked when he lay long on his back, pointed to pressure of the aneurysm on the left brachial plexus. That the right bronchus was likewise compressed, was shown by the comparatively feeble breath sounds over the right lung, while the heart was considerably pushed downwards and to the left; but, besides all this, no pulse could be felt with the finger either in the carotids or in



FIG. 10.—Right radial.

the upper or lower extremities, while the sphygmograph gave only the faintest indications of a pulse at the wrist (see Fig. 10). Moreover, we found that if the neck was compressed over the seat of the carotids, he immediately complained of dimness of vision, became pallid, and had a tendency to faint. Those who are interested in this subject will find a somewhat similar case recorded by the late Sir Thomas Watson.<sup>1</sup>

We must be cautious, however, in drawing the inference that there is an intrathoracic tumour when the pulse is absent. Thus we had a little time ago, in bed 16 of the same ward, a patient who had no pulse at the left wrist, and the impulse of whose heart was felt near the right nipple; the first abnormality was found to be due to an irregular distribution of vessels, for the pulse was quite distinctly felt in the brachial artery, while the second was the result of contraction of the lung, owing to phthisical disease of the right apex.

In the following case there was an almost total absence of indirect symptoms, while the physical signs were well marked and obvious.

<sup>1</sup> "Lectures on the Principles and Practice of Physic," 5th edition, 1871, vol. ii. p. 366.



CASE 102.—On 8th November 1871, a married woman, æt. 46, a millworker, came under my care, who gave the following history of her illness. About two and a half years before this time, without obvious cause, she began to complain of a “violent beating at her breast,” and of hoarseness. About four months after this she began to feel as if a heavy weight was pressing upon her chest, and to suffer from lancinating pains between the shoulders, which extended down the left arm. About eighteen months prior to admission she observed a swelling in the front of the chest about the size of a small hen’s egg; it slowly increased in size at first, but much more rapidly during the last six months of this time. The palpitation also became more marked, especially on exertion, and dyspnœa set in, so as to prevent her from lying with any degree of comfort save on her left side.

On inspection of the chest, the swelling above referred to was seen at the lower and inner part of the left infra-clavicular space, and implicating also the upper sternal region. It was about  $3\frac{1}{2}$  in. in diameter, and its apex—for it was somewhat conical—was about  $1\frac{1}{2}$  in. above the surface. It was the seat of well-marked pulsation and expansion, and purring tremor was distinctly present. Dulness was pronounced over the whole of the tumour and slightly beyond its margin, but percussion required to be very gentle, as the part was exceedingly tender. On auscultation, a well-marked systolic murmur was discovered, which was pretty extensively diffused, but was most distinct over the tumour. The left ventricle was the seat of dilated hypertrophy. A fortnight after her admission the pains in the shoulders had disappeared, so that no indirect (pressure) symptoms remained.

But there is another class of cases in which the physical signs are slight or absent, and in which the indirect symptoms are mainly or exclusively to be depended upon for a diagnosis, and it is to these that I wish specially to direct attention, because their true nature is very apt to be overlooked.

CASE 103.—The first patient to whom reference may be made reached the lecture-room with the greatest difficulty on account of severe dyspnœa, which, however, only troubled him on exertion. He was a moulder, æt. 49, who on admission complained chiefly of cough, dyspnœa, and inability to speak above a whisper, the symptoms being of six months’ duration. His family history was good, he had always previously enjoyed good health, was temperate in his habits, and had never suffered from venereal disease. About a year and a half before admission, as the result, he thought, of exposure to cold and wet, he became slightly hoarse, and in a day or two this was accompanied by some cough, while he indicated the seat of irritation by pointing to his



larynx. The hoarseness gradually became more pronounced, until he found it impossible to speak above a whisper; and two months before I saw him the cough became more severe, and was accompanied by slight mucous expectoration. Latterly he complained of weakness and loss of flesh, and exertion of any kind produced severe dyspnoea. He then consulted the late Dr. Foulis, who treated him by means of the induced current, applied to the interior of the larynx, but without material benefit.

A laryngoscopic examination showed—what is probably the rarest form of laryngeal paralysis—bilateral paralysis of both abductors and adductors, the cords remaining in the “cadaveric position,” that is, midway between complete closure and complete opening of the glottis. The heart was displaced downwards and to the left, the apex beat being  $3\frac{1}{4}$  in. below and 2 in. to the left of the nipple line, and the veins on the left side of the neck and infra-clavicular region were a little fuller than those on the right. The carotids were equal, but the pulse at the left wrist was much feebler than at the right, while pulsation was felt in the suprasternal notch. Slight musical rhonchi were heard at times over the greater portion of the chest on both sides, while the breath sounds were very much more feeble over the left than over the right lung. It was therefore concluded that there was a tumour within the chest which had dislocated the heart, interfered with the free return of venous blood from the veins of the left side of the neck and the free passage of blood to the left upper extremity, and which pressed upon the left bronchus as well as upon the recurrent nerve. I came to the conclusion that the tumour was aneurysmal, and probably springing from the posterior wall of the left part of the aortic arch, thus accounting for the total absence of direct symptoms, with the exception of the slight pulsation in the suprasternal fossa. The patient’s age (49) was quite in accordance with the aneurysmal theory, while there was no trace of the cachexia accompanying malignant disease, which is the most common form of solid tumour within the chest.

The sequel of the case was this: nineteen days after admission, while sitting up in bed, the patient was suddenly seized with violent coughing and breathlessness, and when the house surgeon arrived he found him semiconscious, livid, and spitting bright red blood. About 2 oz. had been ejected, when he became too weak to expectorate, and in about half an hour death closed the scene.

On post-mortem examination by Dr. Coats, an aneurysm about the size of an orange was found springing from the posterior wall of the whole of the transverse part of the arch, the great vessels springing from the aorta lying quite in front of it. It is doubtful whether the right recurrent nerve can have been pressed upon during life, but the left was subjected to very great pressure as it wound round behind the tumour,

being indeed incorporated with it. The posterior wall of the aneurysm was very thin, and adherent to the œsophagus and trachea, which were flattened out and lying almost side by side. On opening the trachea the left bronchus was found to be diminished in calibre, and at the bifurcation of the trachea there were two small openings communicating with the aneurysm, which accounted for the hæmorrhage at the last.

CASE 104.—A seaman, æt. 49; was admitted into the Western Infirmary on 14th September 1882, suffering from pain in the chest and hoarseness, with some cough and expectoration. With regard to his family history, all that could be made out was that his father was alive, and that his mother died at the age of 65 from the bursting of a blood vessel. He had a sore upon the penis eighteen years before, which was followed by secondary syphilis, but, with this exception, he enjoyed good health until five months before he was admitted. He then began to suffer from severe paroxysms of pain in the left breast, which were brought on by exertion, and about six weeks thereafter he complained of hoarseness. This symptom did not last very long, but it returned in a month, soon after which the paroxysms of pain became much more severe, and cough and expectoration set in, the latter being for the most part mucous in character, though occasionally tinged with blood.

On examination, the usual symptoms and physical signs of slight bronchitis were found, but, in addition, there was slight dulness at the bases of the lungs, especially on the left side. There were the usual physical signs of an enlarged left ventricle, the apex beat being a little lowered, and to the left of the nipple line. At midsternum there was a well-marked diastolic murmur, so that the case so far had all the appearance of being one of aortic regurgitation, which had led to an enlargement of the left ventricle, and secondarily to passive congestion of the lungs. A further examination, however, led to the diagnosis of aneurysm, for although there were no undoubted direct symptoms, with the exception of a suspicion of dulness over the manubrium sterni, and the diastolic basic murmur, which was probably due to aortic regurgitation, there were certain indirect (pressure) symptoms which arrested our attention.

(a) He complained of pain in the præcordial region on exertion,—this might have been of the nature of angina pectoris, consequent upon heart affection; but, on inquiry, it was noted that he frequently suffered from pain at the root of the neck between the shoulders, which is always a suspicious symptom, resulting from pressure upon the nerves.

(b) He spoke with a thick, hoarse voice, and he had dyspnœa, which latterly was distinctly paroxysmal, and threatened suffocation. A laryngoscopic examination yielded negative results, and the opinion

which I formed was that the persistent dyspnœa was probably due to pressure upon the trachea, and the paroxysmal attacks to irritation of the left recurrent nerve.

(c) The carotid and radial pulses felt equal with the finger, but the latter were shown by the sphygmograph to be of unequal strength, the left being the stronger.

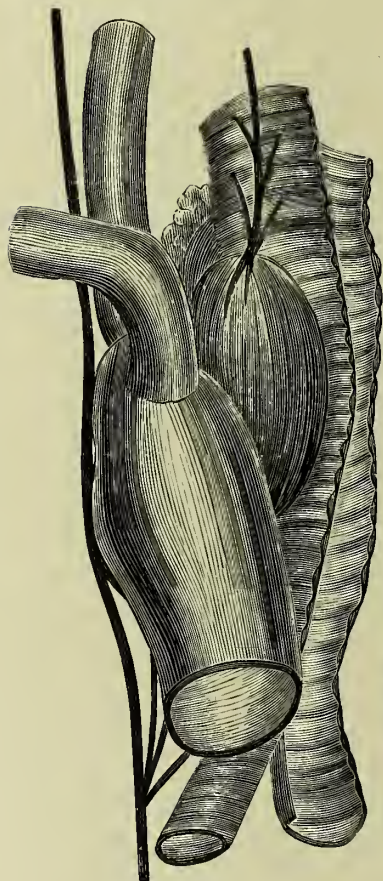


FIG. 11.—Side view.

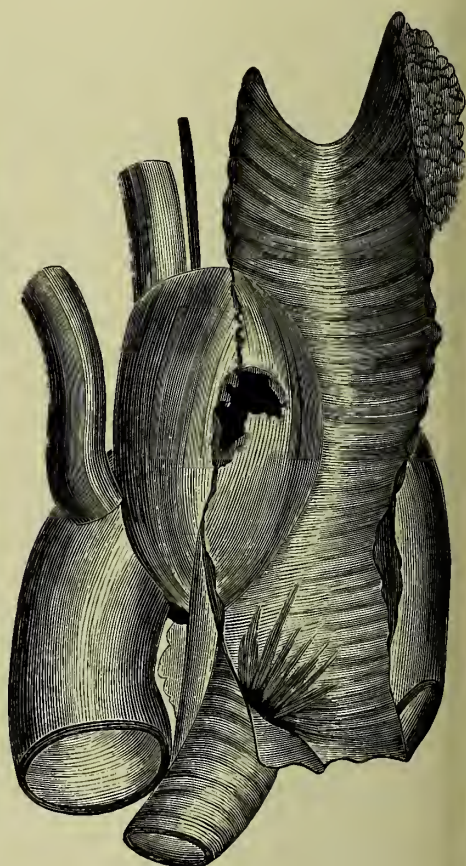


FIG. 12.—Back view.

I could therefore come to no other conclusion than that there was a deep-seated aneurysm, springing probably from the posterior aspect of the left part of the arch of the aorta.

The sequel of the case was as follows :—At 4 A.M. on the morning of 11th November, one of the man's asthmatic attacks set in, and so grave were the symptoms, which at this time pointed to spasm of the glottis, that Dr. Patullo, my house physician, found it necessary to perform



laryngotomy. This gave instant relief to the more urgent symptoms, and in a short time he fell into a sleep which lasted for some hours. The tube then became displaced, and, as the breathing was easy, it was not reinserted. On 16th November, at 10.30 A.M., he had another attack of dyspnoea, and, just as it was passing off, large quantities of blood escaped from the mouth and through the laryngeal aperture, and in a few minutes he was dead.

On post-mortem examination, the bronchial tubes were found to contain a large quantity of dark red frothy material, and the lungs posteriorly were infiltrated with blood,—indeed, almost solidified,—while a large amount of blood was also found in the trachea at its lower part. There was a round bulging of its anterior and left wall, extending longitudinally for about  $1\frac{1}{2}$  in., and beginning  $\frac{1}{2}$  in. above the bifurcation. On the surface of this projection, near the middle, a very ragged aperture, large enough to admit the tip of the index finger, was discovered, in the centre of which one of the cartilages was exposed, ruptured transversely, and projecting. The bulging was caused by an aneurysm of the aorta, springing from the posterior wall of the arch, between the origins of the left carotid and subclavian arteries, and communicating with it by an aperture just large enough to admit the point of the forefinger. The sac, which formed a rounded pouch about 2 in. in its vertical measurement, projected directly backwards. The left recurrent nerve was lost on the surface of the aneurysm (see Figs. 11 and 12).

The wall of the aorta presented very great thickening of the internal coat, and this thickening was much more continuous than usual. The valvular structures of the heart presented nothing remarkable, but the aortic orifice was dilated. The left ventricle was hypertrophied, and the heart weighed  $14\frac{1}{2}$  oz. There were extensive degenerative changes of all the arteries.

CASE 105.—On 9th August 1891, I was asked by Dr. Samuel Sloan to see with him a foreman printer, æt. 46. His family and personal history were good, he was temperate in his habits, and his home-life was one of comfort and happiness. His recreations were walking and rowing. About eight years before I saw him he began to take an interest in rowing, and for several years rowed at the Press Regatta. This necessitated about six weeks of preparatory training before each annual race. After a few years he determined to give it up, but on the next occasion he was unfortunately asked, at a day's notice, to take the place of one of the crew who took ill, being then out of training. Towards the end of the race it was noticed that he suddenly became flurried, and his stroke seemed weak and unsteady. He stated afterwards that at this time his sight left him, and he felt a sudden rush of

blood to the head. At the termination of the race his sight returned, but his companions noticed that his face was intensely flushed, and this continued for a considerable period of time. From this time he often said that he did not feel "the same man," and he vowed that "he would race no more." He very soon gave up the long walks which he formerly enjoyed so much, and remained in bed until four o'clock in the afternoon, instead of rising as formerly at noon. He now frequently complained of pain in the chest especially on the left side, which he attributed to indigestion and rheumatism.

About the commencement of 1881 he began to suffer from paroxysms of distressing cough, which his friends said were most painful to hear. He thought he had caught cold, and hoped to be better when warm weather set in. The cough, however, persisted, and was accompanied by dyspnoea on exertion, and was not benefited by a fortnight's holiday. No alarming symptom showed itself, however, till 17th July. On the afternoon of that day, while walking quietly to his work, he was suddenly seized with a sense of choking, and was so breathless that he could only answer the questions of his companion by putting his hand up to his neck. Eight days afterwards he had a similar attack, and a few days thereafter a third.

When I saw him I suspected an aneurysm, partly from the history, partly as the result of my examination, an opinion which was also shared by Dr. Sloan. The breathing was noisy, and the cough severe and laryngeal in character, while alarming attacks of dyspnoea occurred on exertion or excitement. The laryngoscopical examination yielded negative results; the pulses—radial and carotid—and the pupils were equal, and there was no dysphagia; but the breath sounds were feebler over the left than over the right lung, especially in the infra-clavicular region, in which position there was less resonance on percussion than on the opposite side. There was a systolic—and perhaps also diastolic—murmur, whose maximum intensity was about midsternum. The heart was displaced downwards and to the left, the apex beat being in the sixth intercostal space, and a little to the left of the nipple line.

On 1st September, in a severe and prolonged attack of breathlessness, he died.

The post-mortem examination was made by the late Dr. Foulis on the following day. "On opening the body and removing the heart, larynx, and lungs together, there is found a greatly dilated condition of the arch of the aorta, the lining of which is studded over with raised, thickened yellow patches. This dilatation admits four fingers. At the level of the bifurcation of the trachea there is a small false aneurysm, less than the size of a hen's egg, and with an opening in the aorta of a circular shape as large as a shilling. This false aneurysm impinges on the trachea at the bifurcation, and also on the left bronchus for about



an inch. The external wall of the bronchus forms part of the wall of the aneurysm, but there is no rupture of the aneurysm into the air passage. The size and appearance of the dilated arch of the aorta do not render it probable that the recurrent laryngeal nerve can have been interfered with. The larynx and air tubes, although somewhat injected, present nothing remarkable otherwise. The aortic valve segments are slightly thickened and contracted, the mitral valve is normal, and the heart appears slightly enlarged."

CASE 106.—On 16th November 1889, a man, æt. 36, a driller by trade, was admitted into the Western Infirmary, complaining of hoarseness, cough, and expectoration. He stated that he caught a chill in the end of June, and two days afterwards became hoarse; but, as his medical adviser could not detect anything wrong with the throat, he neglected it. Two months before admission cough set in, and shortly afterwards it became so severe that he had to give up work; expectoration of a clear thick sputum soon accompanied it. Since the onset of his illness he had been troubled with night sweats, but he never complained of pain. He suffered, however, from palpitation and shortness of breath, aggravated by exertion, but relieved on sitting or lying down.

On examination of the chest, the usual signs of consolidation at the right apex were discovered, and at the left there was prolongation of expiration and sibilant râles. The expectoration was frothy and mucopurulent, but contained no tubercle bacilli. The respiratory murmur was much weaker over the left than over the right lung. The heart sounds were normal, the heart was of normal size, and the pulses on both sides of the body were equal. The left pupil was dilated and fixed, the fundus was normal, but the right optic nerve was pale and cupped at its margin. The voice was reduced to a whisper, and the cough was "incomplete" and laryngeal in character. On examination of the larynx, the left vocal cord was found to be paralysed in the cadaveric position. The scars of old strumous ulceration were numerous on the right side of the neck.

The case was evidently one of intrathoracic pressure, the cause of pressure being seated at the root of the left lung. An aneurysm springing from the back of the left side of the aorta was suspected, but as there was evidence of old strumous mischief, the presence of enlarged and strumous glands was possible.

On the morning of 4th February he was awakened by cough shortly after midnight, and sat up in bed. Very soon he spat up a mouthful of blood, and immediately thereafter blood gushed in torrents from his mouth, and he was dead in a few minutes.

On post-mortem examination, a small aneurysm was found springing from the back part of the thoracic aorta, just beyond the arch; it

communicated by an oval aperture with the left bronchus. The aneurysm pressed upon the trachea and left bronchus, and stretched the left recurrent nerve.

This case was the most remarkable of all, in so far as there was a total absence of distinct physical signs, and it, as well as the other illustrations cited, shows the importance of an accurate knowledge and appreciation of the pressure symptoms of intrathoracic aneurysm.

## II.

### THE TREATMENT OF ANEURYSM OF THE ARCH OF THE AORTA BY MEANS OF GALVANO-PUNCTURE.

IN the treatment of external aneurysms the surgeon is in the happy position of being able to make a selection from a great variety of surgical measures, but in the case of deep-seated aneurysms the physician is extremely limited in his choice of remedies. In recent years, however, the scope of our therapeutic measures has been materially enlarged by the discovery of several new methods of treatment. It is to one of these to which attention is now directed—that of galvano-puncture—in connection with several cases of aneurysm of the arch of the aorta, in which this method of treatment was adopted.

In the electrolytic treatment I have been in the habit of employing a Stöhrer's battery with large cells, and, for the most part, needles insulated to within about half an inch of their points, by being coated with vulcanite, as recommended by my friend Dr. John Duncan of Edinburgh. The operations were generally performed in this way:—The skin at the edge of the aneurysmal swelling having been frozen with ether, with the aid of Dr. Richardson's spray-producing apparatus, the needle, connected with the positive pole, was passed into the aneurysmal sac. A zinc plate, connected with the negative pole, was then applied to the chest wall on the opposite side, and, about 3 in. beyond the edge of the swelling, a sponge wrung out of warm salt water intervening between the plate and the skin. The cells of the battery were then raised in the usual way, and the traveller pushed up so as to bring four, six, or eight cells into use. When the operation was completed, the traveller was slowly pushed back, the zinc plate removed from the skin, and the needle extracted, a piece of plaster being applied over the puncture.

The first case was unsuccessfully treated in this way, and as the result was perhaps due in part to the non-observance of

some of the precautions to which reference will be made later on, it may prove as instructive as the others which were benefited by the treatment.

CASE 107.—On the 11th of October 1873, there was admitted into the Royal Infirmary a man who was about 34 years of age.

“His father died at the age of 45, of inflammation of the bowels, and four brothers and four sisters in infancy. His mother is 61 years of age; and he has one brother, *æt.* 25, and one sister, *æt.* 18, in good health. For the last four years he has been a French polisher, but previous to that time he was a joiner, and he has frequently required to lift heavy weights. His diet has always been good, and his habits temperate. He has uniformly enjoyed good health, and has had neither rheumatism nor syphilis. About three years ago he began to complain of palpitation, especially on exertion, and twenty-one months after this, while attending his wife, who was laid up with fever, he experienced a sharp pain in the left breast, which extended into the left shoulder and down the arm. On account of these symptoms he entered the Infirmary on 11th January 1873, and was said then to be labouring under dilated hypertrophy of the left ventricle, with a double murmur at the base of the heart. Under the influence of rest, tincture of *veratrum viride*, in five-drop doses, and syrup of the iodide of iron, he improved considerably, and was dismissed on 27th March. For four months after this he continued in tolerable health, although he suffered at intervals from the palpitation and pain; but about three months ago he observed that he was becoming hoarse, and since then the hoarseness has gradually increased, although it has never amounted to aphonia. About this time, too, he commenced to complain of attacks of dyspnœa, coming on for the most part when speaking or walking rapidly, and giving rise to a feeling of suffocation, referred to the region of the larynx. For some months also he has had a short, dry, somewhat hollow cough, unaccompanied by expectoration. About five weeks prior to admission, a pulsating tumour was detected by a medical man in the jugular fossa, but for a couple of weeks before this he felt ‘a beating above the breast-bone.’ When the tumour made its appearance, the palpitation and pains in the chest subsided. When first discovered, it formed a well-marked prominence at the root of the neck, was about the size of a hen’s egg, and was tender to the touch. After the appearance of the tumour some difficulty of swallowing was experienced, and he had the feeling ‘as if the food was going the wrong way.’ This symptom has latterly in great measure disappeared. He did not sleep well at night, which seemed to be due to the pulsation in the tumour. He perspired freely, had been losing flesh rapidly, and frequently changed colour. Tongue moist, and slightly coated; appetite variable; bowels uniformly costive; pulse 66, natural; temperature 98°·4.”

On uncovering this man's chest, and placing him upon his back, a distinct swelling was observed at the top of the sternum, and inclined a little to the left side,—a swelling which was not very prominent, but which occupied an area about equal to that of a hen's egg. It was to the eye a distinctly pulsating swelling; and, on applying the hand, it was found to be very soft, and not only the seat of pulsation, but also of expansion, and each time the ventricle contracted a distinct purring tremor was experienced. On percussion, there was marked dullness, not only over the tumour, but also over the upper part of the manubrium sterni, and extending a little into each subclavicular region. On applying the stethoscope, a loud, rasping systolic murmur was heard over the tumour. It was also heard over the whole of the chest, in the vessels of the neck and arms, although more markedly in those of the right than those of the left side, and in the thoracic and abdominal aorta; but it was inaudible in the femoral vessels. On examining the superficial vessels, it was observed that they pulsated very visibly; that they were tortuous, and felt like firm, hard, almost tendinous cords (atheroma). Then, on examining the heart, we found that the apex beat was displaced. It was situated  $3\frac{1}{2}$  in. below and  $1\frac{1}{2}$  in. to the left of a vertical line drawn through the nipple. The impulse of the heart was heaving, it was observed over an abnormally extensive area, and there was increased dullness on percussion, in a downward direction, and to the left. That is to say, there were the usual symptoms of dilated hypertrophy of the left ventricle of the heart,—a condition which is very usually, though not invariably, met with in connection with aneurysm of the aorta, owing to the obstruction which it offers to the onward passage of the blood. There was not much difference in the pulses at the wrists, but in the right carotid the pulsation was very much stronger than in the left. And, lastly, the sex of the patient was just what we might expect in a case of aneurysm, which is much more frequent in males than in females.

This patient was admitted on the 11th of October, and we thought it right, for a short time at all events, to watch him, without carrying out any very energetic treatment. We kept him in a state of perfect repose in bed; we regulated his bowels with castor-oil, in order to prevent any straining at stool; and, with the view of calming down the nervous and circulatory systems, we gave him 25 grs. of chloral at bed-time. It soon became evident, however, that the tumour was progressing rapidly towards the surface, and the only hope for him, therefore, in my opinion, lay in giving him the chance of the operation of galvano-puncture. This was performed seven times in all, namely, on 22nd and 26th October, on 2nd, 7th, and 23rd November, and on 1st and 14th December. In each operation, a Stöhrer's battery with large cells was used, and, unless the contrary is stated, it may be taken for granted that only one needle



was used and connected with the positive pole. The first operation, then, was on the 22nd of October, on which occasion eight cells were used, and the operation lasted half an hour. On 26th October the tumour was not in the least diminished, but, on the contrary, was becoming more prominent towards the left side, and the patient complained of a feeling of soreness across the root of the neck. On this day, therefore, the second operation was performed. Six cells were used for ten minutes, and then eight for fifty minutes—one hour in all; and during the whole of this time the patient complained of burning heat in the aneurysm. On 28th October the tumour was somewhat firmer, and a distinct hard line was observed along the track of the needle. The skin covering it was the seat of a slight inflammatory blush, and the patient complained of a feeling of stiffness across the root of the neck, and occasionally of “stounding” pains in the tumour itself; temperature  $99^{\circ}3$ . On account of these symptoms of reaction, we only allowed him light food,—milk diet and soup. We gave him a draught of castor-oil, and applied ice-cold cloths over the tumour for half an hour at a time. On 30th October the pain in the tumour had disappeared, and the temperature had fallen to  $98^{\circ}4$ , but the feeling of stiffness and soreness was even more marked, and there was some complaint of pressure upon the windpipe, of shortness of breath, and of weakness. On 2nd November the third operation was performed, the needle being introduced into the upper part of the tumour. Eight cells were employed on this occasion, and the operation continued for thirty minutes, during the whole of which time the patient complained of intense burning pain. This, however, was soon relieved, as on the former occasion, by the application of iced cloths. On the 3rd of November, as he complained a good deal of palpitation and of pulsation in the swelling, the tincture of veratrum viride was prescribed in doses of three drops, gradually increased to ten, three times a day. On the 6th of November the tumour felt firmer. There was no pain, and the patient felt comfortable. On the following day the fourth operation was performed. On this occasion two needles were made use of,—one connected with the positive, and one with the negative pole. They were introduced parallel to one another, and  $1\frac{1}{4}$  in. apart. The operation was continued for thirty minutes, four cells being used for the first twenty, and six for the remaining ten minutes. During the whole time the patient complained of intense burning pain. Now, mark what happened on withdrawing the needles. On withdrawing the needle connected with the positive pole, not a drop of blood escaped; on extracting the needle connected with the negative pole, however, a jet of blood followed, which at first was dark, but soon became florid, and spouted in jerks, as from an artery of moderate size. Nearly an ounce escaped in all, and the hæmorrhage was arrested by the pressure of a graduated

compress of lint. I shall refer to this again. On the 23rd November it was reported that the patient had had no pain since the last operation, and that the heart's action, under the influence of the *veratrum viride*, was calm. On examining the tumour on that day, it was found to be less firm and more prominent, and in the centre there was distinct pointing, and the skin in this situation had a deep brownish red tint. The fifth operation was performed on this day. One needle was used, which was introduced into the central part of the tumour, the point of the needle being immediately opposite the part which was pointing. Six cells were used, and the operation was continued thirty minutes. Burning heat was complained of, but this was relieved as before by the application of iced cloths. After the operation the pulse was 85, and the heart's action excited, but this was relieved by the administration of 10 minims of the tincture of *veratrum viride*. On the 1st of December the tumour was observed to be much more prominent, pointing most distinctly, and the discoloration of the skin had much extended. Galvano-puncture was performed for the sixth time, six cells being used for fifty minutes. On the 10th December, my assistant, Dr. Strother, being summoned to the patient, found that there was a slight oozing of bloody serum from the most prominent part of the tumour. It was arrested by the application of collodion. On the 14th December the seventh and last operation was performed. Three needles, which were not insulated, were used on this occasion, all in connection with the positive pole, the needles being inserted so that the points were opposite the most prominent part of the swelling. Six cells were used, and the operation was continued for an hour. During the operation there was a slight oozing of blood, owing to the displacement of the collodion. On the 15th December, at half-past four o'clock in the morning, a considerable stream of blood was observed to be flowing down the chest, having separated the collodion covering. The whole tumour was enveloped in narrow strips of lint, soaked in collodion. Over these, strips of gutta-percha tissue were placed, and sealed up with chloroform, which for the time completely arrested the bleeding. Next morning, at half-past seven, the patient became very weak, and vomited. Dr. Strother placed his hand upon the tumour, in order to give it support; and, while the patient was retching, something distinctly gave way, and he exclaimed, "There it is!" This was followed by a gush of blood from all sides, which quickly saturated the sheet and pillows, and for a time he was pulseless. The hæmorrhage was again arrested as before, and the vomiting ceased. After the administration of iced champagne the patient rallied a little, but from time to time the bleeding recurred, and he sank, exhausted and insensible, on the 18th December, at 10.30 A.M.

On post-mortem examination, the surface of the body presented nothing remarkable, with the exception of a dark prominent mass

which protruded from the skin immediately above the suprasternal notch, and inclined a little to the left side. It had an oval shape, and measured about 3 in. from above downwards, and 2 in. across. Its surface was very irregular, and it was evidently composed of coagulated blood. It was found to communicate, by an aperture in the skin, measuring 2 in. from above downwards and 1 in. across, and about the level of the thyroid gland, with an aneurysm of the aorta. The heart was very much enlarged, the left ventricle in particular being hypertrophied and dilated. Owing to the way in which it was thought right to remove the parts, its exact weight could not be ascertained, but it probably weighed from 20 to 22 oz. Numerous calcareous plates were found in the aortic arch, which was somewhat wider than natural. A very large sacculated aneurysm sprang from the upper surface of the transverse portion of the arch, with which it communicated by an aperture large enough to admit two fingers, and situated just before the giving off of the large vessels, none of which were directly involved in it. The aneurysm was somewhat oval in shape, its long axis, directed from above downwards, measuring between 5 and 6 in. It lay in front and a little to the left of the larynx and trachea, which it forced slightly backwards and to the right, but it did not seem seriously to interfere with these parts. Although the large vessels were not at their origins involved in the aneurysm, the left carotid and subclavian were found to be firmly adherent to, and in part embedded in, the walls of the sac, while the innominate was only very slightly attached to it. The sac was almost completely filled with old and recent clots, and at one place, almost in the middle of the sac, and in a line with one of the needle punctures, there was a very distinct stratified coagulum, which was much paler and firmer than the rest. The other organs of the body were healthy.

There is nothing to be proud of in the treatment of this case, but I think it always right, when the opportunity occurs, to report unsuccessful as well as successful cases; for often as much instruction is to be obtained from our failures as from our successes.

I now proceed to give a short account of cases in which this treatment yielded much more satisfactory results.

CASE 108.—The first of these was a married woman, *æt.* 46, a mill-worker, who was admitted under my care in the Royal Infirmary, on the 8th of November 1871. She appears to have enjoyed good health until about two years and a half before this time, when, without any obvious cause, she began to complain of “a violent beating at her breast” and of hoarseness. About four months after the onset of the palpitation, she

first experienced a sensation as if a heavy weight were pressing upon her chest, and complained of lancinating pains between the shoulders, which extended down the left arm, and which gradually increased in severity. About eighteen months previous to admission, she observed a swelling in the front of the chest, which was then about the size of a small hen's egg; it extended gradually at first, but much more rapidly during the last six months of this time. From the time of appearance of the tumour the palpitation became more marked, being also aggravated by movement; and dyspnœa set in so as to prevent her from lying with any degree of comfort save on her left side.

On examination, her general health seemed to be good, although she was rather pale, and had an anxious, suffering expression of countenance. On inspection of the chest, the swelling above referred to was seen at the lower and inner part of the left infra-clavicular space, and implicating also the upper sternal region. It was about  $3\frac{1}{2}$  in. in diameter, and its apex, for it was somewhat conical, was about  $1\frac{1}{2}$  in. above the surface. Pulsation and expansion could be distinctly seen and felt, and palpation elicited well-marked purring tremor over it. There was decided dulness, and percussion required to be done very gently, as the part was exceedingly tender. On auscultation, a well-marked systolic murmur was discovered, which was audible over a pretty extensive area, but was most distinct over the tumour. The left ventricle was the seat of dilated hypertrophy, the apex beat being too extensive and decidedly lowered, and carried to the left, the impulse of the heart being strong and heaving, and the area of præcordial dulness increased in a downward and outward direction. There was no evidence of pulmonary complication, and although there was considerable dyspnœa, the air entered both lungs pretty freely. The pulse was regular, but rather soft; it lagged abnormally behind the ventricular systole, and the left pulse was rather weaker than the right, both in the radial and carotid arteries. The pupils were not affected, and she had no difficulty of swallowing, nor was there any evidence of emaciation or trace of spasm of the glottis, although the voice was hoarse. Her appetite was fair, and her bowels regular; she had no fever, but she slept badly.

She was kept in bed; absolute repose, both mental and physical, being enjoined, but not very successfully enforced; 25 grs. of chloral every night, and 10 grs. of the iodide of potassium three times a day, were prescribed. Her diet was plain but nourishing, her bowels were carefully regulated, and stimulants were forbidden.

Within a fortnight from the commencement of the treatment the pains in the shoulders had in great measure disappeared, and she was sleeping well. The chloral was accordingly stopped, but the iodide of potassium continued.

On the 22nd of December, notwithstanding the pushing of this



medicine, the tumour was evidently getting larger and softer. Accordingly, a bladder, filled with a mixture of pounded ice and salt, was ordered to be applied over the swelling for half an hour twice a day; dusting powder, composed of oxide of zinc, lycopodium, and camphor, being employed in the intervals to prevent irritation of the skin.

The freezing mixture promised well at first, for on the 31st January 1872 it was noted that all pain had disappeared, except when a deep inspiration was taken, and she could lie in any posture. The patient thought the tumour decidedly smaller; it was certainly firmer and much less tender, and purring tremor could no longer be felt over it, but otherwise there was little change.

Matters continued much in this state for some time, but during the month of March it was observed that the swelling was becoming gradually more prominent and softer; and by the end of the month it was evidently a question of days only, when the red blush would appear upon the skin as a prelude to the fatal rupture. It was therefore determined, as a last resource, to try the effect of galvano-puncture.

On the 4th of April, all other treatment having been stopped, and with the kind co-operation of Drs. Perry and Finlayson, the operation was performed for the first time. It was continued for half an hour, four cells being employed for the first quarter of an hour, six for the second. For a short time after it there was slight expectoration, which was tinged with blood, but the patient did not keep quiet, as she had been told to do. Two days afterwards the swelling was found to be firmer, and she could take a deep inspiration almost without any pain.

On the 9th of April galvano-puncture was employed for the second time, and was unattended by hæmorrhage or complication of any kind.

On the 26th of April the following note was taken:—"The result of the two operations has been satisfactory. The patient now complains of no pain, and she can take a deep inspiration without any uneasiness. The tumour is decidedly smaller, and for the most part firm and solid. It still pulsates, however, and the systolic murmur, though not nearly so pronounced, is still present. At its middle and lower part there is a decided want of solidity, and here the pulsation is most distinct."

The operation was therefore repeated, the needle being passed into the soft part of the swelling.

On 11th June the following report was taken:—"Since last operation the improvement has been very marked. The tumour is now firmer at the lower part, is diminishing in size, and the pulsation is becoming less distinct. The murmur continues as before the last operation."

About this time she caught cold, and the cough, which lasted a couple of weeks, and was pretty severe, was accompanied at first by



hæmoptysis, about a wineglassful of dark red blood having been expectorated in all.

On the 8th August the aneurysmal symptoms remained unaltered, but the patient complained a good deal of palpitation and of irregular action of the heart. On this account tincture of veratrum viride was tried, first in three- and latterly in ten-drop doses thrice daily, which moderated somewhat the violence of the cardiac action, while the feeling of irregularity vanished.

On the 27th August galvano-puncture was again made use of, six cells being employed for the first quarter of an hour, eight for the following five minutes, and six for the last ten minutes. The battery, having been recently re-amalgamated, acted more powerfully than formerly, so much so that when eight cells were used she complained of decided uneasiness. She felt as if the needle was very large, and the left arm swollen and very tight; she also felt very oppressed, complained of a burning heat in the chest, and had the feeling as if she could not survive if the current was not moderated. These symptoms passed off whenever the number of cells in use was reduced from eight to six.

The result of this operation was that the swelling was further reduced in size, and rendered firmer.

On the 26th October 1872, before she left the hospital, the following report was taken:—"The symptoms of dilated hypertrophy of the left ventricle remain as at the period of admission into the Infirmary, but for some time an apex systolic murmur has been audible, distinct from the basic one, and which was either not present at an earlier date, or was obscured by the aneurysmal one. The tumour is now only about one quarter of its size before galvano-puncture was resorted to, and it is for the most part very solid, much more so than the surrounding healthy parts of the chest. There is no trace of purring tremor, and its pulsation is much diminished though still distinct, especially in the central, softest part of the swelling. The systolic murmur, too, is still present, although it is much softer than formerly. There is no change in the pulse. Patient feels in the most perfect health, and her only complaint is of a feeling of pulsation within the chest."

On the 20th November 1873 she was readmitted. Before leaving the hospital she was warned that it was absolutely necessary for her to avoid everything in the shape of mental excitement or bodily exertion; in fact, that she must look upon herself for the rest of her life as an invalid,—that she must lead the life of a chrysalis. Now this is the way in which she carried out these instructions. On the 5th March of this year, more than six months after the last operation, she resumed her work at a bleach-field, where her principal occupation consisted in carrying heavy loads of goods upon her shoulders. She continued this for four and a half months, during which time she not only worked all

day, but also engaged in arduous household work at night. She left the bleach-field towards the end of July, on account of a feeling of weakness and of breathlessness, and because she noticed that her abdomen was much distended, and she feared that she was becoming dropsical. She soon partially recovered, and remained in tolerable health until nine weeks prior to her readmission, when, most of her underclothing having been stolen, and having exposed herself in consequence without these garments, she caught cold, and was seized with a hard dry cough, accompanied by increase of weakness and anorexia. In a few weeks, to these symptoms was superadded what is a most serious complication in such a case, constant retching, which she encouraged by putting her finger into her throat, in the hope of getting relief. This increased the feeling of pulsation within the tumour. We now found that over the seat of the previous swelling there was only slight fulness to be observed. On looking at the chest walls pulsation could be only indistinctly seen. It was somewhat more appreciable, however, on the application of the hand. There was no trace of purring tremor. The dulness on percussion, however, remained, as was to be expected, just as when she was first admitted into the hospital. The systolic murmur was heard over the whole præcordial region, but most distinctly at the apex. It was only faintly audible over the tumour, sometimes not audible at all, and seemed to be a communicated apex murmur. The right carotid pulsated more strongly than the left. She had slight cough, and the breathing was more distinct over the right than over the left lung. There was some lividity of the face and lips. The abdomen was distended, but there was no evidence of accumulation of fluid in the cavity of the peritoneum. The retching still continued, and she had no appetite, and complained of great weakness. Shortly after admission her bronchitic symptoms became much aggravated. Bronchitic râles were heard over the whole of the chest, which were moist at the bases, and especially marked over the left base. To these symptoms were soon superadded symptoms of passive congestion of the system. The jugular veins became very prominent; the lividity of the face increased; there was well-marked anasarca; and the urine became scanty (from 16 to 24 oz. in the twenty-four hours), high-coloured, and deposited lithates abundantly. Its specific gravity was normal. It contained a good deal of albumin, but no casts could be discovered. On the 24th December, at 6 P.M., the patient fell into a state of collapse. She became extremely livid; her skin was cold, and covered with a clammy perspiration; there was great sickness, and she was all but pulseless. From this state of collapse, however, she rallied. On the 5th January 1874 she had a similar attack. From this also she partially rallied, but finally sank on the evening of the 7th January,—that is, 498 days after the last operation.

On making a post-mortem examination, considerable fulness was observed at the upper part of the chest in front, especially to the left of the middle line. On removing the sternum, its inner surface was found to be much eroded on a level with the second and third ribs; these, especially the last, being similarly involved. The upper part of the cavity of the thorax, especially on the left side, was occupied by a very large tumour, measuring  $4\frac{1}{2}$  in. from before backwards,  $5\frac{1}{2}$  in. vertically, and  $6\frac{1}{2}$  in. transversely. Its upper border was on a level with the top of the sternum. It lay in front of the trachea, which as well as the right bronchus was in no way involved; the left bronchus passed beneath the lower part of the tumour, and was not much compressed. The right lung was rather firmer than natural, and somewhat cedematous, and at its upper part a few patches of condensation were discovered. The left lung, which was partly adherent to the tumour, was completely carnified and flattened out against the posterior wall of the chest. The pericardium was completely adherent. On opening the aorta, and making a section of the tumour from before backwards, the latter was found to be an aneurysm formed by a dilatation of the aorta, implicating the whole of the transverse and descending portions of the arch, and projecting forward. The great vessels sprang from the walls of the tumour. The aneurysmal dilata-

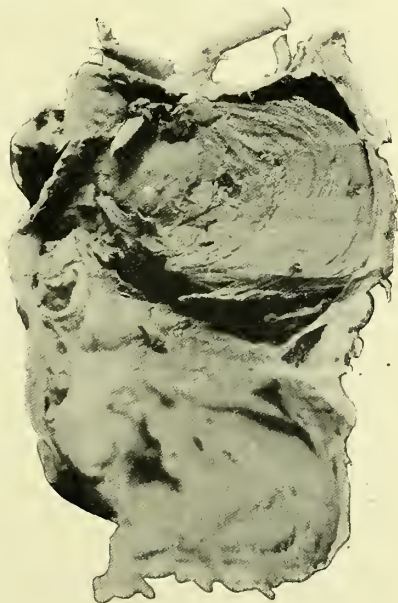


FIG. 13.—Showing anterior wall of aneurysm folded down; the sac at the upper part filled up with stratified clot.

tion was completely filled with firm, pale, fibrinous, and stratified clots (see illustration), but at the lowest part of the tumour the blood had partially separated the stratified clots from the walls of the aneurysm, and penetrated the walls of the sac and the left pleura on a level with the middle of the anterior edge of the compressed lung. The left pleura contained a considerable quantity of bloody serum and recent blood clots. The other organs of the body were healthy.

Although this patient finally succumbed, I think it must be admitted that her case is an illustration of the most perfect cure of an aneurysm which it is possible to expect. For if she had

been in another rank of life, and had been in a position to obtain bodily repose, she might have been living now, and might have continued in comparative comfort for an indefinite period of time.

The beneficial results of the treatment were likewise well marked in the following case, on which I was requested to operate by my colleague, Dr. Scott Orr, under whose care in the Royal Infirmary the patient was.

CASE 109.—This man was a clothlapper, æt. 36, and was admitted on the 19th December 1873, complaining of cough, pains in the shoulders and nape of the neck, and inability to swallow food. He had led a very irregular life, admitted having had gonorrhœa several times, and for the last six years had been very intemperate in his habits. For three or four years he had been more or less troubled with cough; and for two years he had complained of pain in the region of the heart and of gradually increasing dyspnœa, but he never spat blood. About eight weeks prior to admission, as the result of a wetting, he thought, the cough became more severe, and was accompanied by sore throat and pains in the shoulders and nape, especially on the left side. This was soon followed by gradually increasing difficulty in swallowing solid food, which was sure to return into his mouth, unless it was thoroughly masticated; the seat of the obstruction he referred to the top of the sternum.

On admission he was found to be a well-formed and well-nourished man, but in his face were mirrored the ravages of his favourite vice. His tongue was coated with a white fur, his appetite was good, and his bowels regular, but he had great difficulty in swallowing solid food. The urine was normal. He was much troubled with cough, and bronchitic râles were audible throughout the chest, especially at the bases of the lungs. The air entered both lungs with equal freedom, and the respirations were natural; his voice was unaffected, and the pupils normal.

On examination of the circulatory system, the heart was found to be somewhat depressed, and the left ventricle the seat of dilated hypertrophy; while a soft systolic, probably communicated, murmur was heard at the apex. At the upper part of the front of the chest there was dulness on percussion, measuring 3 in. from above downwards, and extending from 1 in. to the right to  $1\frac{1}{2}$  in. to the left of the sternum. In the second left intercostal space close to the sternum there was some fulness and pulsation, and on auscultation a soft systolic murmur was heard. There was also fulness and pulsation in the suprasternal notch, but no murmur was audible in that situation. The pulse was 74, regular, and of fair strength, and the pulses at the wrist and in the carotids were not unequal.



Shortly after admission the symptoms became much more alarming, the fulness and pulsation in the second intercostal space became much more pronounced, and the dysphagia so great that he could not even swallow solid food, and required to be supported by means of nutritive enemata. This was on 2nd January 1874. On the 20th January it was noted that the difficulty of swallowing was not nearly so great, and he could then take fluid food as on admission. The fulness in the intercostal space, however, had so much increased that there was a distinct appearance of a tumour 2 in. in breadth, and projecting  $\frac{3}{4}$  in. above the level of the surrounding chest wall. This swelling was very soft, almost fluctuating, indeed, and was the seat of expansion as well as pulsation: the murmur remained as on admission.

On 12th January, at the request of Dr. Scott Orr, I performed galvano-puncture, an insulated needle connected with the positive pole of the battery being inserted into the most prominent part of the aneurysm, after the skin had been frozen with ether spray; a zinc plate connected with the negative was applied to the chest wall in the vicinity of the tumour, a large piece of sponge moistened with salt water intervening, however, between the plate and the skin. The operation was continued for an hour, four cells of the battery being employed for the first half-hour, and six for the second. The patient felt no inconvenience or pain during the operation, and on removing the needle there was no hæmorrhage. After the operation, however, there was pain in the tumour, and increased uneasiness in the nape of the neck and left shoulder; this was speedily relieved by the application of iced cloths. On 20th January the swelling was thought to be smaller and firmer, and the patient could swallow better.

On 23rd January the operation was repeated as before, the needle being inserted a little higher up and nearer the sternum than on the first occasion; and again upon 8th February. But this time six cells were employed for the first half-hour, and eight for the second, and on removing the needle there was a considerable jet of blood. No report seems to have been taken after the third operation, until 13th March, when the swelling was stated to be much firmer; but the patient had been a little hoarse, and had been spitting a little blood.

On 16th April galvano-puncture was repeated for the fourth and last time, and in the beginning of May, being weary of the confinement and feeling pretty well, he insisted upon leaving the hospital, although strongly urged to remain. Before leaving, an examination showed that the aneurysmal swelling, which was firm and hard, had fallen almost to the level of the surrounding surface. It still pulsated, but no murmur could be heard over it. He continued occasionally to spit a little blood, and still complained of pain in the shoulder and nape of the neck. The



difficulty of swallowing had varied much latterly; sometimes he had a good deal of dysphagia, while at other times he could swallow almost anything.

From the history I have given it will be seen that this was by no means a promising case for operation, and the improvement was all the more remarkable if we take into account his dissipated habits, and the fact that during the treatment, through inadvertence, as I afterwards ascertained, he frequently got up and walked about the ward for several hours.

CASE 110.—G. D., engineer, æt. about 52, was readmitted to the Infirmary on 5th March 1879. He was first admitted on 16th April 1877, on account of a large pulsating aortic aneurysm, which for eight months had been causing him considerable pain. On inspecting the chest, decided fulness and visible pulsation were observed in the upper part of the præcordial region, the centre of pulsation being in the third left intercostal space, and near to the sternum. A soft systolic murmur was audible on auscultation. The apex beat of the heart was felt in the sixth intercostal space, 2 in. to the left of the nipple; there was also some epigastric pulsation. Both pulses were equal. On 18th April 1877, treatment by iodide of potassium was commenced, 20 grs. being given three times a day, increased on 29th April to 30 grs.; absolute rest was also enjoined, and diet was slightly restricted. This treatment was continued up to about the middle of August, when 10 minims. tinct. *veratrum viride* were added. He improved somewhat till September, but on the 12th of this month it was observed that there was dimness of vision in the right eye; the right pupil was dilated and sluggish; and he spoke of a feeling of constriction at the root of the tongue. On 20th September he complained of pain shooting down the arms. Pulsation in the tumour had now become more marked. From this date the condition of the patient gradually continued getting worse. By the middle of October the swelling was very prominent and very soft, almost fluctuant, indeed, and the walls of the aneurysm felt very thin. On 26th October the iodide of potassium and *veratrum viride* were stopped, and 15 minims tinct. *digitalis* every four hours substituted, but withdrawn on 10th November owing to sickness. These various remedies, after a lengthened trial, proved ineffectual. Galvano-puncture was resorted to on 3rd December. Before the operation the tumour had a diameter of about 4 in., and was at its most prominent part about  $1\frac{1}{2}$  in. above the level of the surrounding surface. Pulsation was very marked. The apex beat of the heart was now  $3\frac{1}{2}$  in. to the left of the nipple; the left pulse was weaker than the right, and air entered the left lung less freely than the right. The operation lasted one hour;

the needle connected with the positive pole was inserted in the third left intercostal space, four cells being employed for the first half-hour, and six for the second. On withdrawing the needle, dark blood oozed out, and pressure of the finger was at once applied, but blood continued to escape into the surrounding tissues to an alarming extent, and great pain was complained of in the chest and back. The hæmorrhage was soon controlled by the application of cold and firm pressure with the finger, and during the day equable pressure was kept up by means of a sand-bag. On 7th December the swelling due to effused blood had greatly subsided, and the pain was entirely absent. On 8th December, 15 minims tinct. veratrum viride were ordered. Steady improvement continued, and on 7th February 1878 patient was dismissed, nine months after admission, and two months after the operation. The tumour was much smaller and firmer, pulsation much less marked, and pain entirely gone. Since leaving the hospital he has done no work, but has taken regular exercise, sometimes walking as much as ten miles a day. There has been, notwithstanding, steady and continuous improvement, and when readmitted, although there is still some pulsation, and a soft systolic murmur, there is only the slightest degree of fulness over the seat of the aneurysm. The general condition of the patient is quite satisfactory, he himself saying that "he would not know that anything was the matter with him."

As far as I am aware, these are the first three cases in which this operation has been successfully performed in Scotland. Previous to this, it was tried on two patients by Dr. John Duncan, but in neither did the operation yield satisfactory results. In each of these cases it was performed twice. In the first the treatment was apparently commenced too late, for external hæmorrhage had set in, and the patient died of exhaustion eight days afterwards. In the second the patient died of external hæmorrhage two months after the first operation; but in this case the treatment did not get fair play, owing to the distance from Edinburgh at which the patient resided.

In conclusion, let me refer shortly to the rules which, as far as my reading and experience go, it is desirable to observe in the treatment of aneurysm by electrolysis.

1. *The kind of electricity.*—The induced as well as the continuous current has been employed. A successful case of this kind has been recorded by Mr. Eyre.<sup>1</sup>

<sup>1</sup> *Lancet*, London, 30th July 1853, p. 94.

CASE 111.—The patient, a soldier in the prime of life, had an aneurysm of the left external iliac artery, about the size of a fowl's egg, which pulsated strongly, and was the seat of a murmur. There was œdema and much pain in the limb. Two long fine needles were introduced an inch within the sac, each being connected with the wires of a galvano-magnetic machine. The operation, which was accompanied by pain in the groin and violent agitation of the whole body, was continued for twenty minutes. It was followed by severe inflammation, which threatened the patient's life; but in three weeks the threatening symptoms subsided, and the patient was cured. The successful result in this case was due to the setting up of adhesive inflammation, which filled the sac with lymph, and was fraught with much danger. Now, it is infinitely safer to attempt a cure by chemical than by means of inflammatory action; and therefore, in every case, the continuous current battery should be employed; although even then, unless we are careful, the same result may follow.

2. As to the kind of battery, this is of less consequence, provided it is in good working order, and has large cells, so as to increase the chemical effects. I have always employed one of Stöhrer's large-celled batteries; and, in using it, it may be as well, with the view of intensifying the chemical effect, to add to the fluid in each cell, as recommended by Althaus, 2 drms. of a solution of chromic acid, sufficiently concentrated to impart to it the colour of claret.<sup>1</sup>

3. The needles should not be very thick, but very sharp and angular, and should be moistened with carbolic oil before being introduced; and, what is of the utmost importance, they should be insulated to within  $\frac{1}{2}$  in. of the point; for we must aim at acting upon the blood in the aneurysm only, and not upon the walls of the sac, skin, and intervening tissues. This can be done, as recommended by Dr. John Duncan, a gentleman who has laboured earnestly and successfully to improve our knowledge of electrolysis as a means of treatment, by coating them with vulcanite. The unsuccessful result of the first case which I have related, I attribute in part to the use of needles which were not insulated. These were sent to me along with a Stöhrer's hospital battery, and therefore it is all the more important to give a warning against their employment. I have generally only used one needle, but there can be no harm in the introduction of two or more, especially if the aneurysmal tumour be extensive.

<sup>1</sup> Althaus, "Treatise on Medical Electricity," 3rd edition, p. 294.

A point of much moment, and with regard to which there is at present great difference of opinion, is—

4. Whether the needles should be connected with the positive or negative, or both poles. The balance of opinion seems to be in favour of connecting them with both poles. "I have no doubt whatever," says Althaus,<sup>1</sup> "that the most effective application of the current is that where both poles are inserted into the sac. This mode of application is also that employed by Ciniselli and Duncan. Both poles are useful in different ways; the positive produces a small firm clot, and the negative a large soft one. Where only one pole is in the sac, the resistance encountered by the electricity is so great that a much larger galvanic power has to be used to produce any effect at all; and even then, the effect of that pole which remains outside is lost." And yet one of the most successful cases reported by Althaus, in the volume from which I have quoted, was one of the cases operated upon by me, in which the needle was connected with the positive pole, and in which a weak current was employed. For my part I prefer connecting the needles with the positive pole only, because I have found it efficient in practice; because the clot which forms at the positive pole, though small, is firm and hard, while that which forms at the negative is soft and bulky; and because, on withdrawing the needles, hæmorrhage is much more apt to occur, thus showing that the clot is not of a satisfactory character. Hæmorrhage, too, is a disagreeable complication; it frightens the patient, and excites the circulation; and, besides, serious injury to the aneurysm may result from the manipulations carried out with the view of arresting it.

5. There is much difference of opinion, also, as to the strength and duration of the current. For my part, I am clearly of opinion that it is often used far too strong. Thus, in a case operated upon by Althaus, and many equally striking ones have been published, he says:<sup>2</sup> "I applied the current from ten to twenty-five cells of Smee's battery; so that the positive and negative pole were alternately in contact with each needle, the changes being made every five minutes, so that the whole process lasted twenty-five minutes. The patient complained much of pain, particularly when the changes were made. For the first two days the tumour decreased considerably in size,

<sup>1</sup> *Op. cit.*, p. 651.

<sup>2</sup> *Op. cit.*, p. 642



but afterwards it increased both in size and pulsation; redness and œdema extended round it in all directions, and the patient died. At the autopsy, the whole of the cellular tissue around the tumour was found loaded with lymph, and much indurated. This diffuse inflammation extended the whole way up the neck, rendering the dissection extremely difficult." I prefer, then, to use a weak current, and one which gives rise to little or no pain, and which does not excite serious inflammation; and, in the cases just reported, I never employed more than eight cells of Stöhrer's large battery as a maximum, and never continued the operation for more than an hour at a time. Now, it must not be forgotten that, in using a weak current, at all events, we do not aim at suddenly coagulating the whole of the blood in the sac, but desire the formation of a small firm clot, from which, as a centre, we hope to insure the gradual deposition of successive layers of fibrin from the blood; so that, for the first few days after galvano-puncture is practised, those who are not alive to this circumstance may fancy that the operation has failed.

Lastly, the number of operations, and the length of the intervals between each, must depend upon the effect of those which preceded them.

The rules which I have ventured to suggest as applicable to the electrolytic treatment of aneurysm, are, of course, likely to require modification as our experience of it increases; but this, at all events, may be affirmed, that the dangers of the treatment are by no means serious, if these are adhered to. Thus, violent inflammation is not likely to occur if a weak continuous current of electricity be employed for a moderate space of time; while slight irritation is not an unmixed evil, and may be allayed by the application of iced cloths. It naturally occurs to one that clots produced by galvano-puncture, and which at first are soft and presumably easily detached, are likely to be swept into the general circulation, and to give rise to embolism; but, as far as our experience has hitherto gone, this happily seems to be rather a theoretical than a practical difficulty, and one which appears to me all the less likely to occur if the needles are connected with the positive pole alone.<sup>1</sup> The gas which is generated

<sup>1</sup> At the meeting of the British Medical Association in Edinburgh in 1875, Dr. Clifford Allbutt, in criticising a paper of mine on this subject, mentioned a case in which the accident actually did occur, but in that case the needles were connected with both poles of the battery.



during the operation no doubt in part finds its way into the circulation; but this takes place so slowly and in such small quantity, that no danger is to be apprehended from it. The operation, then, need not cause us much anxiety from the above points of view; but it comes to be a question—and to this the attention of medical men practising galvano-puncture should be specially directed in the future—whether the consolidation of that portion of the aneurysm in particular which approaches the surface may not, in some cases at least, favour the extension of the disease in other directions, and lead to internal pressure symptoms, and to rupture into internal organs.

Since this chapter was written,<sup>1</sup> a considerable number of papers on the subject have appeared, from which it is apparent that opinion has remained divided as to the strength of current to be employed, whether the needles should be one or many, and whether they should be connected with one or both poles. In England, up to 1886, both poles were generally connected with the needles, although Ord, in 1880, treated a case by the insertion of two needles connected with the negative pole only; and Chambers, in 1883, advocated the view that the needles should be connected with the positive pole only. In 1886, R. S. Smith reported a successful case, in which only the positive pole was inserted, the patient surviving for a year after the last operation, and dying from another cause. There were five sittings at considerable intervals, varying in duration from twenty-five to eighty minutes. He employed first one needle, then two, and finally four, all connected with the positive pole. Twenty-five cells of a Leclanché battery were used. Other authors have employed Stöhrer's and other forms of battery, generally with very considerable currents, although in a few instances the employment of weak currents has been advocated. Various authors point out the danger, when the negative pole is employed, of the formation of soft clots, which may be carried into the circulation and give rise to emboli. The general impression appears to be that, in advanced cases, electrolysis can only be regarded as a palliative measure, of value in relieving for a time pain and pulsation, and that a curative effect can only be hoped for in cases not yet far advanced. Stewart, writing in 1892, condemns the treatment as having "proved a failure in the therapy of aneurysm," and advocates, instead, electrolysis through

<sup>1</sup> Drawn up by Dr. W. R. Jack, medical tutor in connection with my department.

introduced wire, of which he cites seven recorded cases, his own forming the eighth. He states that strong currents are to be preferred, and in his own case he uses a current of 70 milliamperes.

In France, on the other hand, there has been more unanimity with regard to the insertion of the positive pole only, the negative being placed upon the skin. The currents used have also been comparatively weak; but the number of needles in connection with the positive pole has varied in the hands of different operators, from one to four. Dujardin-Beaumetz, writing in 1880, quotes a table compiled by Petit, giving the statistics of 114 cases. In 68 there was improvement, in 40 death followed without improvement, in three the condition was unchanged, and the result was unknown in the remaining three. He considers that the operation is always followed by diminution of pain and pulsation, even if the progress of the aneurysm be not arrested.

In 1890, Tillmanns reported a case where he operated thirteen times, the positive pole only being inserted into the sac. The sittings took place at intervals of three to six days, and lasted about ten minutes. He used a current of 10 to 20 milliamperes, a rheostat being inserted in the circuit to diminish pain. At the end of the treatment the tumour was no longer visible, and it had remained in this condition for  $1\frac{3}{4}$  years thereafter. He also cited four more cases, in one of which death occurred from rupture of the tumour into the thorax, although the autopsy showed the good effects of the treatment in the formation of clot; while in the other three, improvement was obtained. In them he had reversed the current, so that the negative pole succeeded the positive in the sac. The action was more energetic but also more painful. A current of over 20 milliamperes was liable to heat the needle, which, in order to obtain perfect asepsis, he did not insulate.

A bibliography of the papers in English, French, and German, since 1877, will be found appended. A bibliography up to 1881 is given in Cannon's paper in the *Lancet*, London, of that year, vol. ii. p. 701.

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### III.

#### ANEURYSM OF THE ABDOMINAL AORTA.

HAVING directed attention to the subject of aneurysm of the thoracic aorta, with special reference to its treatment by means of electrolysis, we pass naturally to the subject of aneurysm of the abdominal aorta, in connection with the case of a patient who lay in bed 3 of Ward 2 of the Western Infirmary.<sup>1</sup>

CASE 112.—This man,<sup>2</sup> A. B., æt. 22, an iron-moulder, was admitted on the 23rd of October 1874, complaining of pain and swelling of the abdomen of three months' duration. His father died at the age of 40 of an obscure tumour in the stomach, and his mother at 30 of fever, while his only brother is 21 years old, and enjoys good health.

He has followed his present occupation for twelve years, and, with the exception of an attack of rheumatic fever four years ago, has never ailed at all. His diet has always been fair, but for the last six years he has indulged largely in stimulants.

Three months prior to admission he began to complain of a dull aching pain in the epigastric region on rising in the morning and on lying down at night, which disappeared, however, if he lay upon his right side, and was always relieved by stooping. A month after this it disappeared altogether for a couple of weeks, but then returned with redoubled vigour. Contrary to expectation, he found the pain relieved by exercise, but it was worse at night after a hard day's work than after a day of rest. About five weeks before admission, the pain, which he attributed to flatulence, became worse, and, in addition to the dull aching, he suffered from sharp pain shooting through from the epigastrium to the back and upwards between the shoulders. His appetite also began to fail, and a full meal sometimes caused vomiting, while on one occasion, before he came to the hospital, he vomited about two tablespoonfuls of blood. He had been drinking freely at the time, and thought that the hæmorrhage was due to his stomach being upset.

<sup>1</sup> Being abstract of a Clinical Lecture delivered in the Western Infirmary of Glasgow.

<sup>2</sup> Reported by Dr. Chas. J. Plumer.

Since the commencement of his illness his bowels have been very costive. There has been no fever. He was treated for worms, for flatulence, for enlargement of the liver, etc., but without any benefit.

These errors of diagnosis must have arisen from carelessness, or from the omission of a physical examination of the abdomen. This yielded the following result:—On placing the patient upon his back and exposing the abdomen, no alteration in its shape could be detected, but distinct pulsation in the epigastric region was observed. On applying the hand, this pulsation was very distinctly felt, and was heaving in character. In the same situation a tumour was detected, which was about the size of an orange, but more oval in shape, and, on placing one hand upon each side of it, it was found to be the seat of expansion as well as of pulsation. On percussion, dulness was experienced, which corresponded with the situation of the tumour in the epigastric region, and which extended a little to the left of the middle line, while around it the percussion was everywhere tympanitic. On placing the stethoscope on the ensiform cartilage, the normal sounds of the heart were audible; at the umbilicus a single systolic sound was heard, but over the tumour a distinct systolic murmur. It may be well to give a warning against pressing the stethoscope too firmly against the abdominal walls, as the compression of the aorta in a state of health may call forth a murmur which may be mistaken for a morbid sound. These symptoms and physical signs which have just been enumerated point to the conclusion that there is an aneurysm of the abdominal aorta, shortly after its passage through the diaphragm. In many cases of aneurysm of the arch of the aorta, valvular murmurs are heard resulting from atheromatous degeneration of the valves, and similar degeneration is frequently detected in the coats of the superficial arteries; but in this patient the valves and the coats of the vessels are apparently healthy. This, however, does not alter my opinion of the nature of the case, and for this reason, that aneurysm of the arch of the aorta generally occurs in persons who are getting up in years, who are generally nearly 40 years of age or upwards, and as a consequence of degeneration of the arterial walls; whereas aneurysm of the abdominal aorta is very apt to occur in young persons, as the result of violent exertion, such as young adults are prone to indulge in, or of injury, and in whom the arterial coats are perfectly sound.

So much for the symptoms which have special reference to the tumour itself, and which are often termed the direct symptoms; but others are usually present, which are dependent for the most part upon the pressure of the tumour upon neighbouring parts,—the indirect or pressure symptoms. Let me dwell for a little upon these. In some cases of aneurysm of the abdominal aorta there is a retardation of the pulses in the lower extremities, but this symptom was not present in this



patient, for the pulses in the radial and femoral arteries beat simultaneously. In aneurysm in the epigastric region the heart is often displaced, a feature which was noted in this case, as the apex of the heart was found to be somewhat elevated and beating to the left of the nipple. It was also observed that the patient was flatulent and that his bowels were very costive, conditions which often characterise cases of aneurysm, and which are due to pressure upon, and interference with, the functions of the colon. It occasionally happens that the spermatic artery is pressed upon, thus diminishing the supply of blood to one testicle and leading to atrophy of that part, or that the renal vein is compressed, inducing passive congestion of the kidney, with its results, scanty, high-coloured, albuminous urine, but in this case the testicles were normal, and the urine quite healthy. Sometimes the aneurysm presses upon the vena cava, and interferes with the free return of blood from the lower extremities, producing œdema of these parts, or upon one of the iliac veins, thus limiting the œdema to one lower extremity. In this case there was no evidence whatever of interruption to the return of venous blood from the lower extremities. But the most constant of all the indirect symptoms is pain from pressure upon the nerves. The pain, which is oftenest complained of in the back and loins, and shoots downwards in the direction of the nerves pressed upon, is usually dull and persistent, with paroxysmal exacerbations. It is generally aggravated by anything which excites the circulation, but is frequently relieved by change of posture, especially by standing erect or lying upon the belly, so as to alter the position of the tumour, and thereby remove the pressure from the nerves implicated. In the present case there was pain at the seat of the aneurysm, shooting through from the epigastrium to the back, and upwards between the shoulders. Though not aggravated during the day, when hard at work, it was always worst on the nights preceded by a day of labour. It was generally relieved by lying on his right side or by stooping.

Pain, then, is the most constant indirect symptom of aneurysm of the abdominal aorta, and is sometimes the only one present. Bantock<sup>1</sup> has recorded a case of abdominal aneurysm, where the only symptoms were severe lumbar pain, attended with nausea. Death occurred suddenly, and on post-mortem examination an aneurysm was found at the upper part of the abdominal aorta, which had eroded the bodies of the last dorsal and two upper lumbar vertebræ. Between 2 and 3 lb. of blood were effused into the abdominal cavity. I have myself met with two cases in which the only symptom noted during life was severe pain in the left iliac region. Let me report one of these in illustration.

<sup>1</sup> *Edin. Med. Journ.*, August 1862. Quoted from "A Year Book of Medicine and Surgery," *New Syd. Soc.*, London, 1862, p. 108.

CASE 113.—A man, æt. 40, a shoemaker by trade, unmarried; was admitted into the Glasgow Royal Infirmary on 15th June 1872. His family history was not bad, and his diet had always been good, but his habits from time to time irregular.

When a young man he suffered from palpitation, which was ascribed by his medical adviser to bathing too often in the sea. He enlisted in the 42nd Highlanders, and joined his regiment in the West Indies, where he had repeated attacks of "liver complaint" and dysentery, and one attack of Asiatic cholera. He also suffered from ophthalmia, which was very rife in the regiment (420 men having been attacked).

For four and a half years he was quartered at Bermuda, and after that at Halifax, where he enjoyed excellent health. During the Crimean campaign, however, he had repeated attacks of dysentery. He was afterwards in India during the Indian Mutiny, when, with the exception of slight attacks of ague, he remained in good health, and in 1870 he was discharged on full-service pension, and became a shoemaker.

In the middle of April 1872 he began to complain of severe pains in the left side, below the floating ribs, which confined him to bed for fifteen days, and from which he partially recovered under medical treatment. On the 4th June, however, it became as bad as ever, so that he was obliged again to take to his bed.

On admission into the hospital on the 15th, his only complaint was of severe pain in the left lumbar and iliac regions, extending over the hip and shooting down the leg. Owing to the pain, he had great difficulty in turning or moving, and inclined to sit up in bed unsupported by pillows, as this posture gave him most relief. My assistant, who examined him in my absence, reported that the internal organs were healthy. He derived some relief from the use of fomentations, and from the subcutaneous injection of morphia.

On the 29th June, after partaking of his evening meal, he fell asleep, and at 9.30 P.M. was found dead by the nurse.

The post-mortem examination was made by Dr. Coats on the 2nd July. The surface of the body was extremely pallid. The internal organs were pale, and the heart, which seemed to be quite healthy, was devoid of blood. The aorta, throughout its whole length, was extremely atheromatous, and, on a level with the diaphragm, a large aneurysm was detected, which was partly within the thorax, but principally in the abdomen, and which communicated with the aorta by an elongated aperture in its posterior wall,  $2\frac{1}{2}$  in. long and about  $\frac{1}{2}$  in. broad, its margin being very irregular. It projected about an inch to the right of the middle line, and 3 or 4 in. to the left.

At the upper part of the aneurysm, which projected into the thorax, an aperture about the size of a fourpenny-piece, obstructed by a clot of blood, and communicating with the left pleural cavity, was discovered.

This cavity contained an immense quantity of blood, the solid clot, apart from serum, weighing 1 lb. 12 oz. - The left lung was much compressed, but otherwise normal. The right lung was healthy, but firmly adherent.

At the lower part of the aneurysm, at the left side posteriorly and below the diaphragm, another orifice was detected, which communicated with a large quantity of coagulated blood situated between the peritoneum and the abdominal walls. This coagulum stretched from the diaphragm to Poupart's ligament, and spread behind the kidney, where it formed a thick layer. The anterior surface of three or four of the upper lumbar vertebræ was markedly eroded. The liver was fatty, the kidneys anæmic, and the spleen rather larger than usual.

The other patient referred to presented very similar symptoms, and from these and other cases I can thoroughly endorse what has been so well stated by Walshe,<sup>1</sup> that "wherever obstinate abdominal neuralgic pains exist, especially in a male, and where the ordinary signs of visceral disease cannot be established, aneurysm should be held in view as very probably present, even though there be no physical sign to warrant such an opinion. Let the examination never be complete, however, without careful auscultation in the left vertebral groove." One qualification to this statement requires to be made, and it is this, that the pain, in order to justify of itself a strong suspicion of aneurysm, must be *left-sided* (the aorta being situated to the left of the middle line), for obscure pain in the right side is generally due to other causes.

While, therefore, in cases of obscure abdominal pain, we should suspect the existence of aneurysm when the pain is in the left lumbar and iliac regions, when it is on the right side we should rather suspect the existence of some other lesion, such as perityphlitis.

Before passing on to the diagnosis of abdominal aortic aneurysm, let me say that, while difficulty of swallowing and implication of the pupil are common symptoms of thoracic aneurysm, they are very rare in aneurysm of the abdominal aorta. When dysphagia does occur, it must be due to reflex irritation; and when implication of the pupil is observed, Seaton Reid thinks it may be dependent upon traction of the great splanchnic nerve. He has recorded an interesting case, in

<sup>1</sup> "A Practical Treatise on Diseases of the Heart and Great Vessels," 4th edition, London, 1873, p. 525.

which an aneurysm springing from the coeliac axis, separated the diaphragm from the pleura, and gave rise apparently to contraction of the right pupil.

There are several diseases which may be mistaken for abdominal aortic aneurysm. Let me, in the first place, take (1) simple aortic pulsation. Now, one might very naturally suppose that nothing could be easier than to distinguish it from aneurysm. The following cases, however, will dispel that illusion. "A man, æt. about 30," says Walshe,<sup>1</sup> "was sent to University College Hospital by Siordet, for an opinion on the nature of the epigastric pulsation under which he suffered. So nearly balanced was the evidence, that I did not venture to pronounce an opinion in one direction or the other. Now the inclination of that evidence, such as it was, told rather for dynamical than structural disease; yet, in about eighteen months later, the patient came under my notice within a week or so of his death from one of the largest aneurysmal sacs I have seen. *Per contra*, there is a case in the hospital books in which, after very careful and repeated examinations, the diagnosis of incipient aneurysm of the vessel was set down in dubitative fashion with a note of interrogation; and though the symptoms greatly improved under the rest and medical appliances of the hospital, they never did so in a sufficiently positive manner to induce me to modify the diagnosis into one of simple pulsation. Now, this woman was killed by a street accident two years later; and her aorta, though somewhat thin and atheromatous, proved to be wholly free from dilatation." I have myself met with several cases in which the diagnosis was doubtful, and have at present under observation a patient with regard to whom there is much difference of opinion, although I am in favour of the aneurysmal view, principally because the temperature of the left lower extremity is felt by the patient, and found by the thermometer to be somewhat lower than that of the right.

This lowering of the temperature, which may or may not be associated with retardation of the pulse, or with œdema, and which may involve one or both lower extremities (though absent in the present case), is common in aneurysm, but never occurs in aortic pulsation, and may therefore be of great service in clearing up the diagnosis. When the aneurysm is situated in

<sup>1</sup> "A Practical Treatise on Diseases of the Heart and Great Vessels," 4th edition, London, 1873, p. 467.



the epigastric region, it may cause some displacement of the heart as in this case, whereas aortic pulsation cannot possibly do so. The sex of the patient, too, is of some assistance, aneurysm being most common in males, aortic pulsation in females, although the exceptions to this rule are not uncommon. Again, in this patient the pulsation is slow, heaving and laboured, while in aortic pulsation it is more active and bounding. There is also a distinct tumour to be felt, with dulness upon percussion over it, and it is the seat of expansion as well as pulsation; whereas in simple aortic pulsation there is no dulness upon percussion and no tumour, although often a deceptive feeling of swelling, which, however, disappears if the patient is put under the influence of chloroform; and there is either no expansive movement, or only to a trifling degree. The presence of atrophy of a testicle, or of symptoms of passive congestion of the kidney, due to causes already mentioned, point very distinctly to aneurysm, but their absence gives us no information at all. And, lastly, this patient complained much of pain, which is one of the most striking symptoms of aneurysm in many cases, and is often terribly severe, whereas in aortic pulsation there is often uneasiness, but never severe pain.

(2) It sometimes happens that aortic pulsation is complicated with the presence of a tumour lying upon and compressing the vessel more or less. In that case most of the direct symptoms of aneurysm are present, for, in addition to the presence of a swelling in the situation of the aorta, there is pulsation communicated to the tumour from the artery, and the former, by compressing the latter and diminishing its calibre, is apt to lead to the production of a murmur. It is said that in cases of aortic pulsation, with tumour, the pulsation and murmur cease by such a change of posture as removes the tumour for the time being from the aorta; but this test is not always reliable, because it often happens that in aneurysm a murmur is heard when the patient is recumbent, which disappears when he sits up or stands, and not infrequently there is no murmur to be heard in any posture whatever. Nor can we place much confidence in the presence of expansion as a sign of aneurysm, because, although when very well marked it probably points to that disease, it is a deceptive symptom, and one which may appear to be present to some extent in cases of tumour lying upon the aorta. An aneurysmal tumour is usually oval or



rounded, and is immovably fixed to the spine, whereas tumours lying upon the aorta are generally of an irregular shape, and are more movable, in the early stages at all events.

Then the indirect or pressure symptoms, which need not be recapitulated, constitute, as a rule, much more marked features of aneurysm than of tumour lying upon the aorta. But, in many cases, it is only by a careful study of the history of the case, and of the order of occurrence of the symptoms, that an opinion can be formed, and in some instances a certain diagnosis is impossible. Before leaving this subject, it may be remarked that the majority of such tumours are malignant, in which case the cachexia characteristic of malignant disease may be detected, or other tumours of a cancerous nature may be discovered elsewhere, just as in cases of aneurysm of the abdominal aorta, aneurysms may be detected in the chest or in the superficial vessels, and throw great light upon the diagnosis.

(3) The only other disease which is likely to be mistaken for aneurysm is psoas abscess in its early stage. But aneurysm usually occurs in healthy males, while abscess attacks delicate persons and both sexes alike, and rigors and constitutional disturbance mark its course. An aneurysm of the abdominal aorta may be complicated with aneurysm elsewhere, while psoas abscess is often associated with pulmonary consumption, or some other form of strumous disease. An aneurysm is firm and oval or rounded in shape; abscess is soft and elongated from above downwards. In the former there is pulsation and expansion, and often murmur; in the latter these symptoms are wanting. In aneurysm, pain is one of the most constant and striking symptoms; while in abscess, contrary, perhaps, to what might be expected, there is little pain experienced, as a rule. And, finally, tenderness, and even prominence of a portion of the spine, and paralysis of the lower extremities, owing to implication of the spinal cord, are not uncommon in abscess; while in aneurysm they are rare, although not invariably absent.

In the *treatment* of the patient A. B., the first and paramount indication is to secure absolute and uninterrupted repose in bed, as our aim is to calm down the circulation, and to favour the deposit upon the walls of the sac of successive layers of fibrin. The fulfilling of this indication may appear a very simple matter, and so it is for a short time after admission, but after a while it is felt to be irksome, and as the pain subsides the patient

does not see the necessity for continuing to observe it rigidly. It is therefore advisable, at the outset, to take the patient into our confidence, and to explain to him the uselessness of our attempting to cure him unless he is prepared to maintain the recumbent position uninterruptedly for several months. He must not be permitted to sit up at all, although he may be allowed from time to time to roll gently over from his back to one or other side. His bowels require to be carefully attended to, not only with the view of preventing digestive derangement, which is so apt to ensue when a patient, accustomed to active exercise, is kept in bed, but also to prevent the slightest degree of straining at stool, which is apt to excite the circulation. In addition to this, we are administering iodide of potassium, in doses of half a drachm, three times a day, a remedy which has acquired a great reputation for the cure of aneurysm of late years, although no satisfactory explanation of its *modus operandi* has yet been given. Its beneficial influence may, however, be due in part to its diuretic action, thus diminishing the amount of water in the blood. For the first few nights we gave him a full opiate, as recommended by Balfour, with the view of preventing the occurrence of coryza.

If, after a fair trial of this treatment, no decided improvement takes place, we may perhaps resort to the method recommended by Mr. Jolliffe Tufnell, and which, in his hands, has yielded very excellent results.<sup>1</sup> This consists in the combination of absolute rest with a very restricted diet. The diet recommended by Mr. Tufnell is as follows:—"For breakfast, 2 oz. of white bread and butter, with 2 oz. of cocoa or milk. For dinner, 3 oz. of broiled or boiled meat, with 3 oz. of potatoes or bread, and 4 oz. of water or light claret. For supper, 2 oz. of bread and butter, and 2 oz. of milk or tea,—making in the aggregate 10 oz. of solid and 8 oz. of fluid in the twenty-four hours, and *no more*." If thirst is urgent, it may be relieved by holding a pebble in the mouth, to favour the flow of saliva, or a plum-stone, as was done lately by a patient of mine labouring under diabetes, which afforded him much relief, or by sucking a small piece of ice from time to time. The object of this dietary is to diminish the amount of water in the blood, and to produce a proportionate increase of the coagulable fibrin. The cases

<sup>1</sup> "The Successful Treatment of Internal Aneurysm by Consolidation of the Contents of the Sac," London, 1875, 2nd edition.

which are recorded in Mr. Tufnell's pamphlet are very encouraging indeed, and I can cordially recommend their perusal.

Or, instead of this, we may resort to the treatment by pressure, which acts in the same manner as the ligature in aneurysms of superficial vessels, namely, by causing stagnation, and consequent coagulation of the blood contained in the sac. This treatment, as applied to internal aneurysms, was first successfully carried into practice by my friend Dr. William Murray of Newcastle. The following is a short outline of the case:—

CASE 114.—“The patient was a spare man, æt. 26, who frequently, in using a large wooden rammer for driving paving stones into the ground, overreached himself, and subjected the trunk of his body to severe straining. Eleven months before admission, after a hard day's work, he was seized somewhat suddenly with severe pain in the back of a gnawing character, and preventing movement. Two months later the same pain began to be felt very severely in the abdomen, catching his breath during inspiration. Seven months after that he began to feel a slight pulsation in the belly; two months later he was admitted into the Newcastle Dispensary, under the care of Dr. Murray. An aneurysmal tumour, the size of a very large orange, was then discovered, extending from about 2 in. to the left to about 1 in. to the right of the umbilicus, and upwards to within 3 in. of the margin of the left lower ribs. When pressure was made on the aorta above it, all pulsation ceased; and when the pressure was removed, a distinct thrill was felt to accompany the rush of blood into the tumour. All palliative treatment having failed to relieve him, he was put under chloroform, and a tourniquet applied for two hours above the aneurysm, which completely arrested the pulsation in the aneurysm and in the vessels of the lower extremities, except during momentary displacements of the instrument; but on removing the pressure no visible effect had been produced. Three days later the operation was repeated, and continued for five hours, and during the last hour all movement and pulsation were completely arrested. On removing the pressure, only very slight pulsation was felt, and by the evening it had quite disappeared. Six years afterwards the patient died suddenly from rupture of an aneurysmal dilatation, situated higher up than the original one. The aorta below it was completely occluded, and its walls atrophied.”<sup>1</sup>

Encouraged by the success of the treatment in this case,

<sup>1</sup> Abridged from Dr. William Murray's pamphlet on “The Rapid Cure of Aneurysm by Pressure,” London, 1871.

numerous trials have been made of the pressure treatment by other observers, and successful cases have been reported by Moxon, Mapother, Heath, Holden, Lawson, Russell, and others.

In the present case the aneurysm springs from the upper part of the abdominal aorta, so that pressure upon the proximal side of the vessel is impossible. The tourniquet would require, therefore, to be applied to the aorta upon the distal side of the aneurysm, by which means consolidation of the contents of the sac may also be produced, as in a case recorded by Bryant, although in it, unfortunately, the patient died from injury to the intestine. The patient was 30 years of age. The tourniquet was applied for twelve hours under chloroform, and the pressure was then discontinued for twelve hours, and afterwards repeated for four hours more. The patient died eleven hours afterwards, and at the post-mortem examination the aneurysm was found to be consolidated, but the intestines had been damaged by the pressure, and peritonitis had been set up. Should distal compression of the aorta be resorted to in the case under review, I shall probably combine with it the use of tincture of *veratrum viride*, in doses of from 5 to 15 minims three times a day, with the view of calming down the action of the heart, as I have found it of some service in the treatment of aneurysm of the thoracic aorta, along with other measures. (This patient only remained in the hospital for a short time, so that there was no opportunity for thoroughly testing the treatment.)

## IV.

### THE PHENOMENA OF EMBOLISM.<sup>1</sup>

ONE of the most valuable results of recent pathological research is the discovery that obstruction of blood vessels is at the root of a great variety of morbid states, and we are thus put in possession of the key to many lesions, the origin of which was previously mysterious and incomprehensible. In a large proportion of cases this obstruction is due to coagulation of the contained blood, resulting either from its stagnation or from some alteration in the walls of the vessels,—thrombosis; but if a thrombus, foreign body, or the like, is washed away by the circulating fluid, it is arrested at the first vessel which is too small to allow its passage, and the results which follow are the phenomena of embolism.

The present communication deals with a few illustrations of the phenomena of embolism, the embolus in each case being derived from the heart. The first two may be taken as samples of the class of cases most commonly met with in practice, while the last two are rare.

CASE 115.—On the morning of the 6th February 1872, a healthy-looking man, apparently between 30 and 40 years of age, was brought into the Glasgow Royal Infirmary by two policemen, who had found him lying on the street in a state of semi-insensibility. No information whatever could be obtained with regard to him, and, as he never spoke, we remained to the last quite ignorant of his history.

On admission he was not insensible, but in that state which may be described as “stupid,” for when we roused him he seemed to understand at times what was said to him, but was quite unable to speak. His pupils were rather sluggish, but otherwise natural; the whole of the right side was paralysed; his bowels were only moved with medicine, he passed his urine involuntarily.

His pulse was 80, and weak; respirations, 28; temperature,  $101^{\circ}\cdot4$ ; tongue dry and furred.

<sup>1</sup> Abstract of a Clinical Lecture, delivered in the Western Infirmary of Glasgow.



The area of splenic dulness was found to be considerably increased.

He passed a large quantity of pale urine,—on several days as much as 140 oz. The specific gravity was low, varying from 1010 to 1015. It contained albumin decidedly, though in small amount, and a few granular casts were detected in the scanty deposit.

On examination of the heart, which was hypertrophied, a distinct systolic blowing murmur was heard, which was most audible over the aortic valves, and was communicated upwards along the course of the aorta. There was no evidence of pulmonary disease.

These symptoms pointed to the conclusion that deposits had formed upon the segments of the aortic valve, a piece of which had been washed away by the blood, and obstructed the middle cerebral artery of the left side. Accordingly, he was kept in a state of the most perfect repose, and light nourishing food was given; while, with the view of counteracting the effects of collateral hyperæmia of the brain, a dose of calomel was administered, and cold cloths applied to the head. The cold applications were only continued for a few days, and the calomel purge was not repeated, as the febrile symptoms rapidly subsided. His diet was gradually improved, solid food being substituted for milk and soup. Four ounces of sherry were given, and latterly thirty drops of tincture of perchloride of iron thrice daily.

For three weeks he improved slowly but steadily, became much more intelligent, could utter a few words, such as “yes” and “no,” and although he never recovered the least power in his arm, he came to use the leg with considerable freedom.

But on the 28th February it was reported that he was much worse. He was feverish, his temperature and pulse were much elevated, his breathing was very hurried, and he moaned a great deal,—in fact, he had relapsed into the state in which we found him on admission, except that he could move the leg.

On inquiry into the cause of the relapse, it was found that the day before he had got out of bed, contrary to orders, and was assisted to a seat at the side of the fire. That evening the symptoms just noted set in.

He gradually sank, and died on the morning of the 1st of March.

On post-mortem examination, an embolus about the size of a small pea, and tapering in both directions, was discovered in the left middle cerebral artery at its bifurcation. In the left corpus striatum there were several softened patches. The heart was much enlarged, and each segment of the aortic valve was converted into a bulky, brittle, calcareous mass, which was broken up with the greatest ease.

The lungs were much congested and œdematous. The liver was much enlarged and fatty. The kidneys also were much enlarged, weighing together 1 lb. 10 oz., and congested, the pyramids in particular.

The spleen weighed 1 lb. 13½ oz.; many of its blood vessels were obstructed by emboli, and the parts supplied by them were either congested, or exhibited a cheesy appearance, or were contracted and cicatricial-like.

Compare this with a case which came under my observation about a year previously :—

CASE 116.—The subject of it was a married woman, æt. 30. Her husband stated that four days before I saw her she rose at 5.30 A.M. for the purpose of sewing a button upon his trousers, when her bowels suddenly became loose, and she fell. She was not insensible, but remained quiet for about twenty minutes upon the floor, after which she was lifted into bed. She never spoke after falling, but next day she came out of bed and did some work in the house. On the following morning she had an attack similar to, though more severe than, the first, and after it passed off it was found that she had completely lost the power of the whole of the right side.

Sixteen months previous to admission, while cleaning a window, she fell to a distance of about 15 ft., and injured the right leg, since which time she often complained of weakness in the limb. It was said she used to vomit her food, that she spat blood on several occasions, and that she had had a cough for two or three weeks before the attack commenced. She had been married for ten years, had given birth to a healthy child, which is still alive, a year after her marriage, and had had two miscarriages, the first eighteen months after the birth of the child, and the second a year after the first. No further history could be obtained.

On examination, it was found that there was complete paralysis of motion of the whole of the right side; sensation also—tested both as regards the sense of touch, of temperature, and of pain—was completely lost, and the reflex movements were in abeyance. The urine and fæces were passed involuntarily. She looked very intelligent and cheerful, understood everything which was said to her, but could only answer the simplest questions requiring the use of words, such as “yes,” “no,” “better,” “Mary.” She could understand perfectly what she saw in a book, but could not read aloud. It was impossible to test her power of writing, because she had never been able to write with facility, and because her right hand was powerless. All the other organs of the body appeared to be healthy, with the exception of the heart, which was evidently enlarged, and at the apex a systolic murmur was audible. Her temperature was 98°·5, respirations natural, pulse 76, and otherwise normal, catamenia regular, and bowels costive.

A few days after admission, internal strabismus of the left eye, which before was only suspected, became well marked; her power of speech

was, however, improved, and there was slight return of sensation, both in the thigh and arm.

About ten days after this it was noted that she was much more intelligent, spoke better, and had a greater choice of words. The motor paralysis of the limbs remained nearly stationary, but the paralysis of the bladder and rectum was passing off. Sensation was returning in the leg, and reflex movements were very distinct.

By degrees the improvement in all the symptoms became more marked, and she could move her leg with great freedom, and even attempted to use it in walking.

From this time onwards, her bowels, which all along were constipated, were regulated with castor-oil, etc., the paralysed limbs were exercised and rubbed daily with camphorated oil, and five drops of liquor strychniæ, three times a day, were given.

About two and a half months after her admission it was found that her power of speech was nearly perfect; she could walk without assistance, although somewhat lame with the right leg, and could close the hand, though not firmly, and the squint was decidedly diminished.

Shortly after this she was dismissed at her own request, but was readmitted five months afterwards, dropsical and helpless, as the result of the heart disease which had furnished the embolus, and in a few days she died.

On post-mortem examination, it was found that the left middle cerebral artery, about an inch from its origin and just before its bifurcation, was occupied by a pale, firm mass, which distended the vessel to a marked extent. Elsewhere the vessels appeared healthy in every respect. The outer portion of the corpus striatum was very much softened, indeed quite diffuent, so much so that a sort of cavity existed, the contents of which were composed of a turbid fluid. The softened portion of brain substance, measuring about  $1\frac{1}{2}$  to 2 in. from before backwards, involved to a slight extent the island of Reil, just outside the corpus striatum. No other convolution seemed to be affected, and all the other centres, though carefully examined, were found to be healthy.

The heart was much enlarged, all its cavities being dilated, and the walls of the right ventricle distinctly thickened. There was also extensive disease of the mitral orifice and valve. A ragged mass, about  $\frac{1}{2}$  in. in length, and attached only by a narrow pedicle, hung almost loose from the anterior curtain. This mass felt gritty, and on taking it between the fingers a few small granules of calcareous matter separated. The curtains also presented polypoid excrescences, and the orifice was fringed with them. The aortic valves were somewhat rigid, and presented a few calcareous plates. The spleen was slightly enlarged, and there was a cicatrix at its upper part, while the kidneys were small, were

the seats of several pretty deep cicatrices, and in one or two of them there were the remains of the yellow cheesy appearance seen in cases of embolic infarcts.

These cases, then, are good illustrations of the symptoms and post-mortem appearances usually met with in cases of embolism, the result of heart disease; but the following, which was kindly communicated to me by my former pupil and esteemed friend, Dr. Richard Williams of Festiniog, North Wales, is worthy of record, as it is an example of an extremely rare, if not unique, form of disease, namely, embolism as the result of a hydatid disease of the heart. I give the case nearly in his own words:—

CASE 117.—“On the morning of the 16th December 1870, about half-past eight, I was hurriedly called to see a man who had been taken ill in one of the quarries here. I requested the man who called to bring him to the hospital, and in a few minutes I had him laid in bed in one of the wards. The history of the case prior to this is, that he took his breakfast that morning and went to his work “as cheerful as usual.” About the time mentioned he was seized with pain in the abdomen, and also in the right arm and leg, with some loss of power in these limbs. From what I can gather, he did not fall, but took off his coat and laid himself down upon it.

“When brought into hospital, he seemed to be in great agony, complaining very much of his abdomen, and writhing and twisting his body in bed, but his lower extremities were almost motionless. He had, however, considerable power in his right arm. On feeling for the pulse, I was unable to detect the slightest trace of a beat in either arm, and the temperature of all the limbs was considerably below the normal, the left leg being colder than the right. On examining the heart, it was found beating very feebly, and rather slowly. The tongue, as far as I could judge, was protruded in the middle line, and I could trace no deviation in the features. The pupils were sensitive to light, and apparently otherwise normal. In addition to these, he had vomiting, the matters ejected being chiefly mucous. During all this time he seemed to be quite conscious. Suspecting embolism of one of the arteries of the brain, I again examined the heart; but it acted so feebly, that, did any cause of a murmur exist, it is likely that it would not have been produced. The age of the man (35) rendered disease of the artery and rupture improbable. A draught, containing 25 minims of tr. opii and as many of sp. am. arom., was given, a hot bottle was ordered to the feet, and fomentations to the abdomen.

“At this time I was obliged to leave him, in order to see the out-patients. On my return, about 2 o'clock, I found him lying on his back



in bed, moaning and semi-conscious, only answering curtly when spoken to in a loud voice. The right side of the face was now evidently paralysed. The right upper eyelid drooped, and the right corner of the mouth was seen to be lower than the left. When he attempted to put out his tongue, it was pulled to the left side. The right arm lay across the abdomen quite motionless, falling like a lifeless thing when raised and let down again. His pupils were now slightly contracted, but sensitive to light. Reaction had by this time set in, and his pulse could be felt, but the heart's action was still weak. No murmur could be detected. His abdomen had become very tympanitic. An enema of turpentine and castor-oil was administered, almost all of which, however, was rejected.

"From this time he continued to get worse, the pupils became more contracted and less sensitive to light, the tympanitis increased, the breathing became oppressed, and at about a quarter past ten he died. The vomiting had early become of the coffee-ground colour.

"Permission was obtained to make a post-mortem examination. Mr. Roberts, the surgeon to the hospital, with two assistants and myself, made the examination.

"Without going into details, I will mention what we found in the heart, brain, etc. On examining the base of the brain, we noticed in the mouth of the left internal carotid artery, where it had been cut in taking out the brain, a membranous substance, which on being picked out was found to be part of a cyst that had been cut through with the artery. On looking at the base of the skull, we discovered the corresponding half of the cyst in the mouth of that part of the artery situated in the cavernous sinus. Previously, in taking out the bowels, we had accidentally cut the aorta near its bifurcation, and one or two of these cysts had come out of it, our attention being thus drawn to them. These, however, had burst. After finding the one in the brain we were led to seek for more, and we succeeded in getting a few in the aorta and iliacs,—all of them being burst except one, which was about two or three times the size of an ordinary pea. One or two of the cysts were of the size of a pigeon's egg.

"We now examined the heart. Attached to the lower part of the septum ventriculi in the left ventricle we noticed a small clot, on removing which a small irregular slit was observed. This opened into a cavity in the septum. I could not better compare this cavity than to the inside of a gizzard, only it was corrugated. I should think it would be, if distended, about  $1\frac{1}{2}$  in. in diameter. We at once concluded that this was a case of hydatids of the heart,—that the mother cyst had burst, letting loose the daughter cysts into the cavity of the left ventricle, and so into the circulation; the one in the carotid producing the hemiplegia. Whether our conclusion as to the case being one of hydatids is



the right one, is a question, as neither of us had ever seen one before. I cannot explain the gradual way in which the paralysis came on, unless it be that at first, in the shock of the bursting of the mother cyst, the action of the heart was not sufficiently strong to block up the artery entirely, and that this was more effectually done when the reaction came on, thus cutting off the supply of blood and increasing the paralysis."

In the following case the superior mesenteric artery was the seat of an embolus:—

CASE 118.<sup>1</sup>—Robert Adam, engineer, æt. 39; was admitted into the Western Infirmary, on 6th December 1879. He had been bedridden for eighteen weeks, suffering from severe cough, with occasional hæmoptysis, shortness of breath, palpitation, weakness and dropsy of the lower limbs. These symptoms, with the exception of the hæmoptysis, were all present on admission, and the following is a summary of the other facts then noted.

There was bulging in the præcordial region, with pulsation and tenderness on pressure in the epigastrium. The apex beat was indistinctly felt in the nipple line. The sounds of the heart were very irregular, and a presystolic murmur was present, heard most distinctly over the apex. Respiration was hurried and shallow, and interrupted by frequent fits of coughing. The expectoration was mucous and frothy. The chest was barrel-shaped and hyper-resonant to percussion in front, but behind there was comparative dulness at the right base. Dry bronchitic râles were heard over the chest in front, and moist râles at the bases behind. The respiratory murmur and the râles were less distinct at the right base. The tongue was large and flabby, moist and marked at the edges by the teeth. Appetite was fair, and bowels regular. There was slight fulness in the region of the liver, which was enlarged, measuring 6 in. in the nipple line. Urine was scanty, of high specific gravity, but no albumin was present. Temperature, normal. There was no history of rheumatism.

The treatment was directed chiefly towards relieving the more urgent symptoms, namely, the dropsy, the cough, and the difficulty of breathing.

On 6th January, a month after admission, it is noted that the patient is very much improved; the swelling of his legs has completely disappeared, the cough is less troublesome, the expectoration less abundant and more easily got rid of, and he can take his food very well. The following notes are condensed from the ward journal:—

25th January.—For the last three or four days the patient has been complaining of pain across his abdomen, just below the borders of the ribs, and of slight pain in his back, in the region of the kidneys,

<sup>1</sup> Reported by the late Dr. John Moyes.

especially the left. To-day he complained that the pain in his abdomen was worse, and to-night he was seized with violent griping pain in that region. It came in paroxysms of a few minutes' duration, occurring about every half-hour, and leaving in the interval the duller pain before mentioned. The abdomen was quite normal in appearance; pressure relieved the pain while the paroxysm was present. There was no distension, and no tenderness on palpation. No signs of hernia were present. Slight vomiting occurred, but the matters ejected consisted only of the food. His bowels had been regular enough up to this time.

*26th January.*—Patient is in no way improved, and he has had diarrhœa during the night. He would not rest sufficiently long in one position to allow of his temperature being taken, but, judged by the hand, it is not at all elevated. A draught, with a few minims of carbolic acid and sulphuric ether, was given in peppermint water, and half a grain of the acetate of morphia was injected subcutaneously.

*27th January.*—The symptoms remain as before, except that the diarrhœa has increased, and the vomited matter is now black and very fluid. The morphia was repeated in the evening.

*28th January.*—After the subcutaneous injection, he slept for about six hours, awakening about 2 A.M. From this time he grew rapidly worse; the vomiting became profuse, and what was ejected was chiefly altered blood, but the diarrhœa was not increased, and no blood was observed in the stools; there was great pallor of the face and surface of the body, and he died in the early morning (6 A.M.) while in the act of vomiting.

The following is the report of the post-mortem examination, which was made by Dr. Joseph Coats on the 30th January:—

External appearances present nothing remarkable.

*Chest.*—The heart is considerably enlarged, weighing  $17\frac{1}{4}$  oz. The enlargement is mainly, if not entirely, of the right ventricle and auricle. The aortic valve is competent, and the curtains are normal. The mitral valve is greatly altered, the curtains are coalesced and rigid, and there is frequent massive deposition of lime salts in the thickened valvular tissue. At one place there is a rough ragged surface, as if a piece of calcareous material had been recently carried away. The mitral orifice is displaced downwards by the coalescence of the curtains, and only admits one finger. In the left auricular appendage there are several globular vegetations, one of considerable size and rather loosely attached. The left auricle is considerably distended, and its wall thickened. The right ventricle is greatly enlarged, and the muscular wall is firm and of considerable thickness. The tricuspid orifice admits readily six or seven fingers, being markedly dilated. The auricle is also enlarged. There

are no thrombi in the right ventricle or auricle. The lungs are non-adherent. There is hypostatic engorgement and œdema of both, and a quantity of dirty mucus is found in the bronchial tubes.

*Abdomen.*—The folds of intestine are at once seen to present frequently a dark red appearance, and they are occasionally glued together by very soft recent fibrinous exudation. The red colour of the intestine is present mostly in the ascending colon and ileum, but also to some extent in the jejunum. The redness stops rather abruptly near the beginning of the transverse colon, only an inch or two of it being affected. The mesentery of this part of colon is also dark red in parts. On removing and opening the intestine, a dark brown pultaceous material is found in the ascending colon, whose mucous membrane is of a very dark red colour, and remarkably soft. The dark red colour is nearly uniform, but there are darker blotches. The ileum contains a semi-fluid material in large quantity, which has a reddish colour, and is obviously altered blood; this material is present more or less throughout the ileum. The mucous membrane of the ileum is in parts of a dark red colour, and exceedingly soft and friable; in fact, the appearance is very suggestive of that of the bowel when rendered gangrenous or nearly so by strangulation. The mucous membrane chiefly, but also the other coats, are infiltrated with blood, and the former is in parts nearly diffuent. This condition is not marked at the extreme lower end of the ileum, but a little up from that it begins to be very marked, and continues so throughout the ileum. In the jejunum there is slaty-coloured semi-fluid fæces, and the mucous membrane occasionally presents a red colour and slight infiltration with blood.

On examining the superior mesenteric artery, it is found plugged and distended. The situation of the plug is just where the colica dextra is being given off, a portion of the plug passing into and distending this branch for a certain distance. The parts of intestine supplied by the plugged portion of the artery are—the ascending colon (probably a part also of the transverse), the ileum, and possibly the lower part of jejunum. The arteries to the upper part of jejunum are free, and so are the pancreatico-duodenalis inferior and colica media.

The spleen is normal in size, or slightly enlarged, weighing  $5\frac{1}{4}$  oz. It contains a small infarction of a red colour. The left kidney weighs 6 oz. It contains several infarctions—two of large dimensions and cheesy, two or three small, and having the appearance of clots of blood in the kidney substance. The right kidney weighs  $4\frac{1}{4}$  oz., and appears to be normal. The liver weighs 54 oz., and presents nothing remarkable.

## V.

### CASE OF COMPLETE OCCLUSION OF THE INNOMINATE ARTERY, ARISING FROM THROMBOSIS, THE RESULT OF EXTREME ATHEROMA.<sup>1</sup>

CASE 119.—The patient, a male, æt. 49, was admitted to the Western Infirmary on 28th June 1883, complaining of pain in the præcordial region, and his whole illness seemed to have dated from about six weeks before his admission, as, previous to this time, he had never suffered from any illness. He was suddenly seized while at work with cardiac pain, having all the characters of angina pectoris, and, after his first attacks, the seizures increased in severity, causing him to leave his employment and seek admission to the hospital. The attacks were always most frequent and severe after exertion of any kind, and lasted generally from five to fifteen minutes.

When about 20 years of age he suffered from venereal disease, although it is difficult to be sure whether it was syphilitic or not. In this regard it should be noted that at one time he suffered from nocturnal pain in the tibiæ, and that numerous small, white, depressed cicatrices were scattered over the back.

Loud V.S. and V.D. murmurs were heard at the base and down the sternum, and this, along with dilated hypertrophy of the left ventricle, pointed to extreme aortic obstruction and regurgitation. There was obscure pulsation in the suprasternal notch; the right pulse was exceedingly feeble, as compared with the left; and the superficial vessels were atheromatous.

These signs, along with the clinical history, pointed to the probable presence of an aneurysm of the first part of the aorta or of the innominate.

Upon the 23rd December 1883, while in the bath-room at stool, he suddenly fell forward on the floor and expired. There was no external hæmorrhage.

Upon the 25th December, a post-mortem examination was made, with the following results. On examining the thoracic aorta, it was seen that the entire vessel was the seat of the most extreme athero-

<sup>1</sup> Reported by Dr. J. Lindsay Steven.

matous change, presenting here and there very typical calcareous plates. The degeneration was not confined to the aorta itself, but extended down into the common iliaes and up into the vessels of the neck. At one part of the descending portion a pouch-like dilatation was present, but there was no decided aneurysm anywhere. On attempting to pass a probe through the innominate artery, it was found to be quite impervious and to be practically converted into a solid mass of tissue. The vessel was certainly not increased in size. After hardening in alcohol, a section was made through the posterior wall of the vessel, and the occlusion was seen to be due to the plugging up of its lumen by a solid mass of rather pale, fleshy-looking tissue. The plug was closely applied to the vessel wall all round, although it did not seem, in some situations at least, to be firmly adherent to it; and it extended from a little above the origin to just beneath the spot where the subclavian is given off. The orifice of that vessel was very small, and the carotid beyond the obstruction was exceedingly atheromatous and calcareous. The left carotid was somewhat dilated at its origin.

A small longitudinal portion, including vessel wall and plug, was subjected to microscopic examination, with the following result:—The internal coat was observed to be exceedingly thickened and atheromatous, and to present, in several localities, cavities with ragged, broken-down walls (atheromatous abscesses). The plug presented the appearance of much compressed fibrin, without any sign of organisation, except that here and there colonies of round cells were observed, as if the process was commencing.

The left ventricle was much dilated and hypertrophied, and the aortic curtains were quite incompetent. The valves were much contracted, and one of them was so adherent that its movements were extremely impaired.

One coronary artery was unchanged, but the orifice of the other was narrowed. Just above the level of the free margins of the valves the wall of the aorta was so hard that it felt as if a whalebone ring had been placed in it.

Concerning the condition of the other organs, little need be said. The kidneys presented some degree of cystic change, and showed several cicatrices on their surfaces; the liver was slightly hyperæmic.



## VI.

### CASES ILLUSTRATIVE OF THE INFLUENCE OF NITRO-GLYCERIN IN ANGINA PECTORIS, AND OF CASCA IN DILATATION OF THE HEART.

IN a paper "On Deviations from the Normal Arterial Tension, associated with Certain Diseases of the Kidneys and Heart, and their Treatment," read at a recent meeting of the Southern Medical Society, some cases were given illustrative of the effects, amongst other drugs, of nitroglycerin and casca, two of which are now recorded.

CASE 120.—*Angina pectoris, illustrating the influence of nitroglycerin in subduing and preventing the recurrence of the paroxysms.*—The preparation used on this and other occasions was a 1 per cent. solution in spirit. My experience, so far, of the comparative merits of nitrite of amyl and nitroglycerin is, that while the latter acts more slowly,—several minutes elapsing before its influence is fully felt,—it seems to be more permanently beneficial.

Mr. M. came to me in the month of February 1880, on account of pain in the epigastric region. He is a married man, æt. 46, a postmaster, and seems to have enjoyed fairly good health until a little more than a year ago, when he began to observe that, when he walked fast, he felt something wrong about the lower end of the sternum, which he says "was neither a dull nor an acute pain, but something between the two." He imitated the sensation by taking my hand gently and gradually increasing the pressure until he grasped it very tightly indeed. This uneasiness only occurred when he exerted himself, especially after food, and became so commanding that he had to stop walking, but in about a minute it passed off and he was able to proceed again for a time, when it recurred. These symptoms had been becoming worse of late, so much so, that in going up a stair, which he had previously been able to do with perfect comfort, he had to stop three or four times.

He was supposed to be labouring under disease of the stomach, and had been treated accordingly. A careful examination, however, failed to show any stomach symptoms, although he occasionally vomited a mouth-

ful of food when he had bronchitis, to which he seems to have been subject during the winter months for some years. On the other hand, an examination of the circulatory system pointed to a weak, probably fatty, heart. The heart was not decidedly increased in size, and its apex beat could not be felt even when he lay upon his left side. The sounds were feeble and toneless, and the pulse, though pretty regular, was only 52 per minute.

I had no doubt that the pain referred to was of the nature of angina pectoris, and determined to try the effect of the internal administration of nitroglycerin, for which purpose he was admitted into the private hospital in Renfrew Street on the 19th of March 1880. The initial dose was one drop of the 1 per cent. solution three times a day, which was gradually increased until he took as much as fifteen drops six times a day, and with no inconvenience, except that for half an hour after each dose he complained of some fulness in the head, and of headache. It was soon found, however, that his symptoms were sufficiently controlled by ten drops three times a day. Before the treatment was commenced he could never walk more than three hundred yards without pain, but when he left the hospital on the 9th of April he could walk at least half a mile at an easy pace on the level without discomfort; and when the pain began to make its appearance he could put a stop to it at once, and continue walking, by swallowing a dose of ten drops.

I saw him again on 10th May, when I found him in at least as satisfactory a state as when he left the hospital. His pulse was 60 and of better strength, and the sounds of the heart were stronger. He told me that he had found that three drops was then a sufficiently large dose of the nitroglycerin to keep the angina symptoms in abeyance.

CASE 121.—*Illustrative of the influence of casca bark (Cortex erythrophlæi) in raising the tension and removing the symptoms of passive congestion resulting from dilatation of the heart.*—The preparation used in this and similar cases was the tincture of the strength of 1 in 10. James W., æt. 45, married, a riveter, was admitted into the Western Infirmary on 11th January 1881, complaining of palpitation and pain in the region of the heart of twelve years', of cough and dyspnœa of three weeks', and of swelling of the lower extremities of eight days', duration.

The family history is defective: his father and mother are dead; also a sister died at the age of 11 of "white swelling" of the knee, and two brothers in childhood; while three brothers and two sisters are alive.

He enjoyed excellent health until twelve years ago, when, owing to depression of trade, he was obliged to work in a coal-pit. Shortly after this he observed that, on exertion, he had palpitation and pain in the

præcordial region, accompanied by a feeling of sickness, which, however, subsided under the influence of rest.

About a month after this he began to work in a boat-yard, where he was much exposed to vicissitudes of weather, and, as a consequence, he had a severe attack of well-marked rheumatism, which confined him to bed for three months, and it was six years before he was entirely free from pain in the joints.

From this time he seems to have enjoyed good health, and continued at work until three weeks before admission, when he had to remain at home on account of great difficulty of breathing, and a feeling of constriction of the chest. At the same time, too, a severe cough, accompanied by white and frothy expectoration, set in. The cough was most troublesome at night, and the dyspnoea was then so great that he could not lie down.

Nine days before admission his feet and legs began to swell, and the swelling rapidly spread up to the abdomen.

On coming to the bedside of this patient, it was at once evident that there was extreme difficulty in breathing, so much so that he was altogether unable to lie down; his face was pale, and his cheeks and lips slightly livid. There was very marked anasarca of the lower extremities, and of the scrotum and abdominal parietes. The temperature was normal.

The pulse was so rapid and irregular that it could not be counted, and the apex beat, which was very feeble and irregular, was slightly lowered, and carried 2 in. to the left of the nipple line; the cardiac dulness extended slightly beyond the normal to the right side, and to an extent corresponding to the situation of the displaced apex to the left, the transverse measurement being nearly 7 in. There was no distinct epigastric pulsation, but the cardiac sounds over the whole præcordial region were feeble and irregular, while an indistinct systolic murmur was heard at the base.

The breathing was rapid (33 per minute), and loud bronchitic râles were heard all over the chest, moist at the bases, where also there was dulness on percussion, especially at the right side.

There was moderate, uniform, very tender enlargement of the liver, which extended for  $1\frac{1}{2}$  in. below the margin of the ribs.

The urine was scanty, 19 oz. in twenty-four hours, high coloured, and throwing down a copious deposit of urates on cooling. The specific gravity was 1026. There was a slight trace of albumin and bile.

The tongue was clean, but the appetite bad; there was uneasiness after food, followed frequently by the eructation of sour mouthfuls, but neither nausea nor vomiting was present. The bowels were costive, and, when moved, he had frequently some pain and hæmorrhage from piles, which had troubled him more or less for thirteen or fourteen years.

*Treatment* was commenced on 13th January. On this occasion 1 gr. of digitalis and 1 drn. of cream of tartar three times a day were prescribed. On 16th January to this was added 5 minims of tincture of casca three times a day, the dose being increased on the 18th to 8 minims, and on the 19th to 10.

Till the casca was commenced, all the symptoms were becoming more urgent, especially the dyspnoea and anasarca; the penis and scrotum were so swelled that the catheter had to be resorted to; and on the 18th, before the 10-minim doses were given, the scrotum had to be punctured with Southey's trochar, 8 oz. of fluid being removed.

On 19th January, the day on which the full dose was reached, decided improvement set in, and by the 25th all the alarming symptoms were gone; the urine was copious, and no longer contained albumin; the dropsy, the passive congestion of the liver, and the dulness at the bases of the lungs, were gone, the stethoscope only revealing slight bronchitic râles in the chest. The pulse was quiet and nearly regular, and the patient could lie comfortably in bed. Pulse tracings were taken by my assistant, Dr. J. Lindsay Steven, which showed the influence of the casca upon the pulse. A pulse tracing, taken the day upon which the casca was commenced, and another after it had been administered nine days, shows great diminution of the irregularity, and corresponding increase of strength. The following table shows its influence upon the urine:—

*Urine Table.*

Date.	Treatment.	Quantity of Urine.	Specific Gravity.
1881.			
Jan. 13	Dig. and cr. tart. comm.	19 oz.	1026, albumin trace.
" 14	...	22 "	...
" 15	...	14 "	...
" 16	Tet. casca, 5 minims, ter.	28 "	1020.
" 17	...	24 "	...
" 18	Increased to 8 minims,	36 "	...
" 19	" 10 "	36 "	...
" 20	...	160 "	1012, albumin gone.
" 21	...	175 "	...
" 22	...	135 "	...
" 23	...	170 "	...
" 24	...	108 "	...
" 25	...	80 "	...
" 26	...	70 "	...
" 27	...	76 "	...
" 28	All the above stopped	60 "	...
" 29	...	42 "	...

The treatment was stopped, partly because the symptoms for which it was given had disappeared, but principally because pain in the region of the heart, of the nature of angina, and which had troubled him very

little before admission, became a prominent symptom. This, however, gradually in a great measure disappeared, under the influence, at first of inhalations of nitrite of amyl, and latterly of the administration of a 1 per cent. solution of nitroglycerin, in doses gradually increased to 10 minims three times a day, but subsequently reduced to 3 or 4, on account of giddiness and headache.



## VII.

### A CASE OF ULCERATIVE ENDOCARDITIS.

THE following case, which I had the opportunity of seeing several times in consultation with Dr. J. Crawford Renton, may naturally find a place here. I am indebted to him for permission to quote from his report.

CASE 122.—A. W., æt. 34, of average height, but pale and lightly built, came under observation on 13th March 1880, when the following note was made:—Patient complains that two days ago he had a slight shivering, which was followed by headache, sickness, and vomiting, accompanied by pain over the region of the liver. The vomiting is aggravated when any food is taken.

*Previous history.*—Five years ago he had an attack of rheumatic fever, which affected his heart, and since then he has been subject to rheumatic pains. Four weeks ago he had an attack of pain in the knees and ankles, which speedily subsided on the administration of salicylate of soda.

*Family history.*—Decidedly rheumatic.

*Present condition.*—Pulse, 120; temperature, 102°. Tongue furred. Pain on pressure over the liver, but no increase of dulness. Bowels constipated. No cough or pain in the chest; the cardiac dulness is increased, especially in a downward direction and to the left, and on auscultation a loud mitral murmur is heard. This had been previously noted as a result of the rheumatic fever; the action of the heart is quite regular. Urine high coloured. Patient is advised to keep his bed, and to have linseed poultices applied over the liver; with iced milk or milk and potash water to drink, a simple pill to be given at bedtime to move the bowels.

14th.—Patient has been very restless all night, and wished to leave his bed. Pulse, 120, regular; temperature, 103°. Bowels have acted freely, and the vomiting has ceased. Milk is taken willingly.

*Evening.*—Pulse, 120; temperature, 104°. Over the chest and abdomen a number of hæmorrhagic spots were observed, and the nurse states that his nose bled freely. Two tablespoonfuls of brandy ordered

to be given every three hours. Owing to a mistake, a sample of the urine was only obtained to-day, and on microscopic examination was found to contain blood.

15th, *Morning*.—Has had a restless night. Pulse, 120; temperature,  $103^{\circ}5$ . Tongue dry and brown; the purpuric spots have increased in number over the chest and abdomen; and the conjunctivæ are distinctly yellow, as also the body generally.

16th.—Again a restless night. Pulse, 130; temperature,  $104^{\circ}$ . Tongue dry and cracked. The yellowness of the skin is more apparent. The tenderness over the liver is more marked, and its dulness is decidedly increased. Has had one loose motion, pale in colour and very fœtid. Urine redder in colour, and contains blood and tube casts. There are several large fresh hæmorrhagic spots on the feet, and some of those first observed seem to have increased in size. Patient continues to take nourishment well.

*Evening*.—Pulse, 130; temperature,  $104^{\circ}$ . Condition same as in morning.

17th.—After a very restless night, he became visibly weaker, and answered questions very slowly. Pulse, weak and rapid; temperature,  $105^{\circ}$ . Ice was applied to the abdomen and head, and 10 grs. of quinine given internally. This had the effect of reducing the temperature to  $102^{\circ}$ , and rendering the patient more comfortable.

5.30.—Patient gradually became weaker, and died.

*The post-mortem examination*, which, being made in a private house, could not be perfectly complete, gave the following results:—The skin was of a generally yellow colour, with numerous red petechiæ on face, chest, and abdomen, and to a less extent on the feet. The posterior parts of the body had a generally dusky tint from decomposition, which extended forward some distance on the arms, neck, shoulders, and face.

On opening the chest, the pericardium was found adherent throughout. The heart, with pericardium attached, weighed  $13\frac{1}{2}$  oz., being slightly enlarged. On being laid open in the usual way, the aortic and mitral valves were found to be festooned with soft and friable material. This was particularly manifest on the aortic valve, one of whose semi-lunar curtains (the right) had an extensive shaggy mass projecting from it. Where this mass was attached it could easily be seen that the valvular structure was disorganised, and, on removing the soft material, a circular gap was left in the curtain, about  $\frac{1}{2}$  in. in diameter. On the other curtains the deposition was mainly at the borders contiguous to that chiefly affected. In addition to these appearances of recent disease, the aortic curtains were generally thicker than normal, and there was also a localised thickening of the endocardium at the base of the curtains, forming a band half an inch in breadth, and extending transversely for a distance of  $1\frac{1}{2}$  in. This had the appearance of a dense tendinous

layer, which, like the other white structures of the body, had a distinctly yellow colour. The mitral valve was also slightly thickened, and, when viewed from the auricle, it was seen to be fringed with soft vegetations just within the edges of the curtains.

The lungs were non-adherent, and simply presented œdema in their posterior parts.

The spleen was greatly enlarged, weighing over 14 oz. Before opening it there were several hard places detected, which felt like infarctions; on cutting into these, fluid blood escaped abundantly, and the splenic tissue was seen to be broken down. There were one or two more solid infarctions, with slight caseous metamorphosis.

Both kidneys were enlarged, weighing  $6\frac{3}{4}$  oz. and  $7\frac{1}{4}$  oz. In both there were two or three large wedge-shaped infarctions, which presented at some parts a yellow colour, as if from pus. In addition, the kidneys were beset by innumerable hæmorrhagic spots, each with a yellow point (pus) in the middle. These were mostly in the cortex, but were also present, to some extent, in the pyramids.

The liver was large and soft, but without any hæmorrhagic spots.

The intestines presented numerous blotches of hæmorrhage under the peritoneum, and in two or three places there were considerable tracts of intestine of a dark brown colour, which extended through the entire thickness of the gut, and was suggestive of gangrene.

On exposing the brain, considerable subarachnoid hæmorrhage was observed on the antero-lateral aspects, and in the brain substance there were a few small areas of softening, which, on section, presented a punctated red appearance.

The heart and kidneys were examined, microscopically, in the fresh state. The exudation on the valves was found to be largely made up of micrococci, which gave the usual reactions. In the kidneys, the yellow dots in the centres of the red spots were found to consist of masses of pus corpuscles, and surrounding the spots there was great hyperæmia of the vessels. It was also seen that micrococci were present in narrow tubes; but the consideration of their relations was deferred till the tissues were hardened. One of the petechial spots on the skin was also removed, and hardened in spirit.

A portion of the mitral valve, including the exudation, and portions of the kidneys, were hardened in alcohol and chromic acid, and the following are the results of the examination:—

It appears that in the rough projections on the valves two constituents are recognisable. On the surface there is a layer presenting merely a molecular structure, but really consisting, as appears when a high power is used, of fibrin mixed with a granular material. This granular material in the kidneys is readily recognised to be masses of micrococci, or bacteria. In fact, this superficial layer is made up of

fibrin and minute organisms of the character of micrococci, or globular bacteria. Beneath this layer there are masses of round cells, having very much the characters of granulation or any other inflammatory tissue. The superficial layer consists of very soft material, portions of which are easily broken off. On one of the curtains of the aortic valve especially, there were large masses of this soft material, which was found in the fresh state, as already mentioned, to be composed largely of masses of micrococci.

In the kidneys there were abundant evidences of embolism. The arteries were seen to be obstructed here and there by a material essentially similar to that forming the superficial layer of the endocardiac lesion. It was clear that there had been a direct transportation of material from the valvular structures to the kidney, and it was noticed that the actual plugging had frequently taken place at the bifurcation of an artery,—this, again, being a usual occurrence in embolism. At the seat of plugging, only the general lie of the coats of the vessel could be distinguished, their constituents being no longer recognisable. In fact the coats seemed to have ceased to exist as such. Around the artery there was an active inflammation, as evidenced by the enormous aggregation of round cells; these infiltrated the coats of the artery, and even penetrated into and partly displaced the plugs. The pressure of the embolus apparently led to destruction of the wall of the artery, and to an active inflammation around it. Besides the filling up of the arteries, there was plugging of two other sets of vessels. In the first place, the Malpighian tufts were frequently the seat of masses of micrococci, which here appeared to be unmingled with any other material. Besides the Malpighian vessels, capillary vessels were, here and there throughout the cortex of the kidney, found to be filled with micrococci. No evidence of the existence of micrococci in the tubules was found.

Sections were made of the piece of skin, including the petechial spot, but no embolic appearances were detected. The spleen was much too soft to make it possible to procure consistent sections. In bits removed by the scissors nothing remarkable was found. Sections of the liver showed enlargement of the cells, with cloudy swelling and a very marked fatty degeneration, the usual appearances of an aggravated parenchymatous inflammation.

DISEASES OF THE RESPIRATORY  
SYSTEM.





## I.

### ON THE CURABILITY OF ACUTE PHTHISIS (GALLOPING CONSUMPTION).

THE term acute phthisis is frequently used in a very vague manner, and is applied to cases which have no title whatever to the appellation, as anyone can readily satisfy himself by a perusal of the medical journals. It is therefore important at the outset to specify the limited class of cases to which reference is about to be made. By acute phthisis, then, I do not mean cases merely of short duration, nor chronic phthisis associated with more or less fever, nor those which, while running their course, suddenly develop acute symptoms. But I allude to cases of phthisis setting in suddenly, with high and continuous fever, great prostration, and profound involvement of the system, reminding one rather of typhus, or a severe attack of typhoid fever, than of a pulmonary affection. Indeed, in some instances it may be necessary to watch the course of the disease for some days before an absolute diagnosis can be made, so that the term "galloping consumption," used by many of our leading authorities, although not a scientific one, conveys to the mind a most accurate impression of the kind of disease with which we are dealing.

Such cases are comparatively rare, and are only exceptionally met with in hospital practice; not only on this account, however, but also because the patients are supposed to be too ill to be removed, or, if removed, they are fully as likely to find their way into a fever as into a general hospital.

There are two forms of acute phthisis—(a) Acute tuberculosis, and (b) acute pneumonic phthisis.

In acute tuberculosis, tubercles are more or less copiously disseminated throughout the lungs, and often also in other organs. But the symptoms of acute phthisis do not appear unless or until these foreign bodies produce congestion or inflammation of the pulmonary tissue, and, if the patient lives long enough,

breaking down of the lung tissue may occur here and there, with the development of small excavations. That the infiltration of the lung with tubercles does not necessarily lead to acute phthisis, is proved by the occasional discovery, post-mortem, of obsolete tubercles scattered through the lungs, in the case of those who never experienced pulmonary symptoms during life.

In acute pneumonic phthisis, the disease exhibits almost from the first a more or less extensive consolidation, most frequently of the upper lobes, which often spreads to other parts, and instead of resolving in a week, like a croupous pneumonia, leads to rapid and widespread destruction of lung tissue, which soon terminates the life of the patient.

Before proceeding further, it may be well to refer to the symptoms which, according to some of our leading authorities, are supposed to indicate the presence of galloping consumption, and what views they hold as to the prospects of recovery.

Dr. Walshe<sup>1</sup> thus refers to the symptoms of acute miliary tuberculation: "The symptoms are those of a febrile affection, with more or less positive functional implication of the lungs. The invasion, sometimes occurring in a state of apparent health, or preceded remotely by various depressing influences, and immediately by exposure to cold and wet, is marked by rigors, followed by acrid heat of the skin; the rigors may recur on several successive days, and there may subsequently be perspiration with abundant crops of sudamina. . . . Prostration sets in early; in a few days the patient may be unable to stand. Thirst, total anorexia, epigastric tenderness, dry lips and tongue, dental sordes, all signify digestive disturbance; but the form of the abdomen is natural, there is no gurgling in the iliac fossa, diarrhœa is rare, and constipation may be extreme. Restlessness, insomnia, cephalalgia, vertigo, tinnitus aurium, diurnal wandering, and nocturnal delirium bespeak cerebral sympathy. Pain in the chest, variable in seat and never intense; cough (sometimes preceding, sometimes following, the fever in order of development), paroxysmal or not, and either absolutely dry or accompanied with expectoration of clear or yellowish and opalescent mucus, or in rare instances of viscid sputa, slightly tinged with blood, without actual hæmoptysis; dyspnœa of considerable amount, indicated not only by the absolute frequency of breathing, but by perversion of its ratio to the circulation,

<sup>1</sup> "Practical Treatise on Diseases of the Lungs," 4th edition, London, 1871.

and lividity of the face,—constitute the chief of the thoracic symptoms. The relationship of the pulse to the respiration, however, varies; the average in my cases has proved 3 to 1.”

The late Professor J. Hughes Bennett<sup>1</sup> has described it as follows:—“This form of disease, commonly called “galloping consumption,” is generally distinguished, not only by its rapid progress, but by the febrile symptoms which accompany it. There are frequent chills, followed by great heat and sweating, red tongue, nausea, loathing of food, vomiting, diarrhoea. There is a rapid pulse, at first of good strength, but soon becoming feeble; dyspnoea on slight exertion; cough, profuse expectoration, sometimes tinged with rusty-coloured blood. Occasionally the expectoration is trifling. There is great exhaustion, rapid emaciation, restlessness, and, before death, wandering of the mind and delirium. On percussion, one or both lungs exhibit unusual dulness, which rapidly extends and becomes more intensified. It is sometimes most marked at the base. On auscultation, there are at the first dry bronchial sounds, and prolonged expiration, which soon passes into moist rattles, loudest with inspiration. The crepitations are now transformed into mucous râles, more or less coarse, frequently accompanied with dry bronchial murmurs and pleuritic frictions. . . . Such cases may prove fatal in a period varying from two or three weeks to a few months.”

Sir Thomas Watson, in his classical work,<sup>2</sup> thus expresses himself: “The acute form is of this kind: the patient, who may or may not have seemed previously to be in good health, is suddenly attacked perhaps with copious hæmoptysis; or he catches a severe cold; and almost immediately afterwards intense fever is set up, of a hectic character; the physical signs of pulmonary phthisis, especially of cavities, rapidly develop themselves, and death ensues within a few weeks. The case has been one of what is called galloping consumption. After death, the lungs are found hollowed by numerous vomicae. Under Laennec’s view, tubercular matter has been widely distributed, and has quickly softened. According to Niemeyer’s, there has been catarrhal pneumonia in various lobules of the lungs; the pneumonic products have fast degenerated into cheesy matter, which has as rapidly broken down; any crude tubercles that

<sup>1</sup> Reynolds, “System of Medicine,” London, 1871, vol. iii.

<sup>2</sup> “Principles and Practice of Physic,” fifth edition, London, 1871, vol. ii.

might also be in the lungs he would regard as secondary, but by no means necessary, results of the inflammation and its products. To my mind, what seems certain in this form is that scrofulous inflammation, scattered broadly through the pulmonary substance, causes its rapid and extensive disorganisation. . . . There is another form of acute consumption, or, as it is usually and I think more fitly called, acute tuberculosis. It is a striking but not very common disorder, and is sure to arrest the attention of the observer when it does occur. I have met with some half-dozen examples of it. The following are its main features. The patient becomes suddenly very ill, has frequent rigors, difficulty of breathing, cough, a very rapid pulse, night sweats, and high fever. You listen at his chest, but you do not hear the sounds that are proper to phthisis. You do not find dulness confined to the upper lobes, nor pectoriloquy, nor gurgling respiration; but what you do find are rather the sounds which belong to acute capillary bronchitis, small crepitation diffused all over the chest, and succeeded by absence or deficiency of the natural breath sounds everywhere, without any defined consolidation of the lung. Meanwhile there is none of the expectoration which is characteristic of phthisis. In short, you would not suppose that the disorder was phthisis at all. It resembles more the onset of one of the specific fevers. The disease runs a short and distressful course: the countenance and lips of the patient become livid; often he cannot lie down; and within a few days, or at least in a week or two, he is dead; and after death you find his lungs bestrewed from top to bottom with miliary tubercles,—the granulations of Bayle,—myriads of them, grey, glistening, and minute. The granules are thickly and uniformly spread over the whole of the air passages, or throughout the entire extent of the lungs; and their sudden pressure there in such abundance excites inflammation, which masks and conceals the actual mischief; and the true nature of the case is not often suspected until the body is examined after death. Such, and not the reverse sequence, appears to me to be the *ordo rerum*. The tubercles are the cause of the inflammation, and not the inflammation the cause of the tubercles.”

Dr. Williams<sup>1</sup> writes as follows: “Let us briefly sketch the two most terrible forms of the disease. A man of middle

<sup>1</sup> “Pulmonary Consumption,” London, 1871.



age is attacked with fever, with pungent heat of the body, cough, viscid expectoration, extreme oppression, and overwhelming weakness, resembling that of continued fever, and the likeness sometimes appears also in a coated or dry brown tongue, sordes on the teeth, and occasional delirium. The vesicular breath sound is superseded everywhere by bronchial rhonchi and mixed crepitation. On percussion, the chest is dull nowhere, but less clear in the posterior than in the front parts. This case might be supposed to be one of universal capillary bronchitis, with general pulmonary congestion. So it is; but this is not all. In spite of blisters and other remedies, the breathing remains short and difficult; the pulse becomes more rapid and feeble; the lips, cheeks, and nails become livid; clammy sweats break out; and the patient dies in the third or fourth week from his first attack. The lungs are found congested, and the bronchi loaded with viscid mucus; but, more than this, innumerable miliary tubercles are scattered throughout the pulmonary tissue, and these are the obvious cause of the intractability of the case. They break out simultaneously, like the eruption of an exanthem, and by their numbers and bulk induce such an amount of obstruction and congestion in the lungs as to destroy life before there is time for any considerable degeneration or softening to take place. This acute tuberculosis is the worst and most surely and rapidly fatal form of consumption. The second form of acute consumption begins with pneumonia in one or both lungs. The patient, generally a young subject, is of consumptive family, and may have previously had cough and occasional hæmoptysis. The fever attendant on the inflammation may not be very high at first, and the expectoration by no means so viscid and rusty, nor the crepitation so fine and even, as in simple inflammation of the lungs. But the symptoms are more persistent. The pulse and respiration remain frequent. The heat of the body, particularly the chest, continues remarkably high, almost burning the ear of the auscultator as he examines the back. But this intense heat is alternated with occasional chills and profuse sweats at night. The cough continues distressing, and the expectoration becomes opaque, purulent, and clotty; the flesh wastes, and the strength ebbs away; and, if the appetite does not return, the progress of consumption and decay is rapid. Auscultation reveals the steps of the destructive process in the lung. The affected part, or the

whole side or part of both sides, becomes dull on percussion, only varied with the cracked-pot note from the gurgling within; the loud tubular sounds are replaced by coarse crepitation, in parts amounting to gurgling; and the diffused bronchophony is modified into detached islands of voice, loud and pectoriloquous, or into the snuffling or whispering sounds equally characteristic of a cavity. This form of *galloping consumption* may also prove fatal in a few weeks; and the lungs are found after death in a state of consolidation, little more dense than the hepatisation of pneumonia, but their red is mottled with grey and yellow patches of tuberculous or aplastic matter, and excavated in various parts into numerous small cavities communicating with the bronchial tubes, and containing more or less of the same compound matter which was expectorated during life, consisting of mucus, pus, degenerating epithelium, and exudation matter, with disintegrated fragments of lung tissue.

These descriptions, although varying a good deal in details, because the symptoms necessarily differ materially in different cases, and because patients die in different stages of the disease, are very similar in their main features, and if we put them together, we get a very good picture of the disease, and one which should enable us to distinguish it when we encounter it at the bedside.

Such, then, being the clinical features of acute phthisis, let us see what view is generally taken of the prospects of recovery.

A perusal of the literature of the subject leads to the conviction that authorities are very hopeless with regard to the prospects of sufferers from this disease; and although there are numerous records of fatal cases, it is very rare to meet with a carefully recorded case fulfilling the definition of acute phthisis, as I understand it, in which a restoration to health occurred. There are many, too, who hold that acute tuberculosis is the more certainly fatal of the two forms, while I am rather inclined to the opinion that acute pneumonic phthisis is more dangerous, as it leads to such rapid and widespread destruction of the pulmonary tissues. The following quotations give a very fair picture of the views generally entertained with reference to prognosis:—

“In reference,” says Bennett,<sup>1</sup> “to the prognosis of individual

<sup>1</sup> Reynolds, “System of Medicine,” London, 1871, vol. iii.

forms of cases of phthisis, we must regard acute phthisis as generally fatal. The difficulty here lies in the diagnosis. Once recognised, however, the persistency of intense fever, with rapid emaciation and formation of cavities, give us little hope of a favourable termination."

Walshe<sup>1</sup> has observed that "the treatment of acute phthisis is far from being well understood; the rarity with which the disease is diagnosticated explains this. Leudet, as a matter of experience, lauds the expectant method: better trust to the efforts of nature than run the risk of doing harm by purely tentative interference. Perhaps he is right. Still it is painful to look on, a mere spectator."

Sir Thomas Watson,<sup>2</sup> speaking of the first form of acute phthisis which I have already described in his own words, says: "Over cases of this acute nature medicine can have very little effective control." And with reference to the second: "I can offer you no counsel as to the treatment of these sad cases; they baffle our art, and they are always, so far as I know, fatal. All that can be attempted is to assuage the severity of the most distressing symptoms."

Finally, Trousseau<sup>3</sup> gives his opinion in the following words: "In galloping phthisis, the prognosis is death. Death sooner or later is invariably the termination. Hitherto art has unfortunately proved unable to contend against this redoubtable malady; it is still more distressing to know that we have not the power even to alleviate the condition of sufferers by whom we may be consulted."

With these preliminary remarks, I proceed to give a brief outline of the kind of treatment on which, in my opinion, reliance may be placed; but it must be understood that no two cases can be treated exactly in the same way,—each patient and his surroundings must be specially studied before deciding upon our line of action. The principal indications are—(1) To keep up the strength; (2) to keep down the fever; and (3) to treat any special symptom or complication which may arise.

1. Two thoroughly trained and reliable nurses are indispensable, one for day and the other for night duty, for without admirable nursing no hope of improvement can be entertained;

<sup>1</sup> "Practical Treatise on Diseases of the Lungs," 4th edition, London, 1871.

<sup>2</sup> "Principles and Practice of Physic," 5th edition, London, 1871, vol. ii.

<sup>3</sup> "Clinical Medicine," vol. iii., *New Syd. Soc. Translation*, 1870.

and the hygienic and other surroundings of the patient should be satisfactory, so that we need not be surprised that, when the disease occurs in the homes of the working classes, it is almost necessarily fatal, and that hospital patients have the best chance of recovery. The patient must be fed constantly on fluid food (soup being avoided if diarrhœa is present) both day and night, and stimulants (from 2 oz. to 10 oz.) are required early in the attack, but should be given in small quantities, frequently repeated and along with the food. In fact, the dietetic treatment should correspond with that of a case of fever presenting symptoms of a similar degree of severity.

2. At bedtime a subcutaneous injection of sulphate of atropine ( $\frac{1}{160}$  to  $\frac{1}{80}$  gr.) is given. This checks perspiration when present, acts as a sedative to the system, indirectly helps to reduce the fever, and diminishes the secretion from the lungs.

3. Remedies are given with the view of lowering the temperature. This is a point of the utmost consequence, because the majority of the patients die consumed by the fever. Some benefit is derived by allowing the sufferer to suck ice freely, by giving the food and drinks iced, by sponging the body with iced vinegar and water, or even by using iced enemata. But our main reliance is upon one or more of the following methods:—

(a) Niemeyer's antipyretic pill or powder every four hours, containing 1 gr. quinine,  $\frac{1}{2}$  to 1 gr. digitalis, and  $\frac{1}{4}$  to  $\frac{1}{2}$  gr. opium. The proportion of opium may have to be increased beyond this, if there is much diarrhœa. The effect of the digitalis must be carefully watched, and it must be omitted for a time if the pulse becomes abnormally slow and irregular, and the secretion of urine very scanty.

(b) The administration daily, particularly shortly before the temperature tends to be highest, of from 10 to 30 grs. of quinine, given, as suggested by Liebermeister, either in a single dose, or at all events within an hour.

(c) The application of iced cloths to the abdomen for half an hour every two hours, so long as the temperature exceeds 100°. The application of iced cloths is made in this way:

The night-dress is pulled well up over the chest so as to avoid any possibility of its being wet, and, for a similar reason, a folded blanket is placed across the bed under the patient's body. The usual bedclothes are arranged so that they reach up



to the lower part of the chest only, which latter is covered by a separate blanket, in order to prevent unnecessary exposure while the cloths are being changed. Two pieces of flannel are employed, each being sufficiently large when folded into four layers to cover the whole of the front and sides of the abdomen. One of these, wrung out of iced water and covered with a piece of dry flannel to protect the bedclothes, is applied, while the other is lying in a tub of iced water at the side of the bed. The pieces of flannel are changed every minute, or so often that they still feel cold when they are removed. The changing of the flannel, particularly where two persons are in attendance, one to remove the bedclothes and the flannel, the other to apply the piece which is freshly iced, can be accomplished in a few seconds.

I mention these apparently trivial details, because I often see the process carried out in such a way as to be worse than useless, and because I have frequently been interrogated on the subject. But I think it right to add that I do not wish to lay too much stress upon the value of iced cloths by themselves, but to attribute the success of the treatment to the *combination* of measures employed. Of course the same precautions must be taken in using iced cloths as in the employment of the cold bath, and they must be removed at once if the temperature falls to near the normal, and if there be any tendency to coldness and collapse.

Such is a general outline of the line of treatment from which such excellent results have been obtained, and the more experience I have of it, the more confidence I place in it; but of course, in this, as in all disease, we must avoid routine, and must study each case by itself, as no two cases can be treated exactly alike.

The following cases illustrate the plan of treatment:—

CASE 123.—On 1st November 1875, there was admitted into bed 8 of Ward 2 a lad, David G., æt. 17, an apprentice grocer, complaining of cough, expectoration, and great debility, of two weeks' duration. His parents, one brother, and one sister, are alive and well, but he has lost a brother and a sister, although he does not know at what ages or of what they died. With the exception of scarlet fever at the age of 6, and small-pox at 10, he always enjoyed pretty fair health. But about a fortnight prior to his admission he got wet while on his way home from work; next morning he felt out of sorts and giddy, and while in



the act of dressing, fainted. Since then he has been confined to bed, his principal complaint being of weakness, fever, with occasional sweatings at night, cough, with some pain in the right side of the chest, and a tendency to diarrhoea. When admitted he was in a state of high fever. His pulse was 132 and wiry, his skin dry and hot, temperature  $101^{\circ}$  to  $104^{\circ}$  (see Fig. 14), tongue dry and coated in the centre; he was thirsty, but his appetite was not gone, and his bowels were regular; his eyes were glazed and congested, and his face flushed and swollen, and on coughing almost cyanotic. There was evident disease of the lungs; his breathing was accelerated, twenty-eight per minute; there was frequent soft cough, especially in the morning, and expectoration was abundant and muco-purulent. On examination of the chest, both sides seemed to expand equally; there was no comparative dulness, but the percussion note all over was less

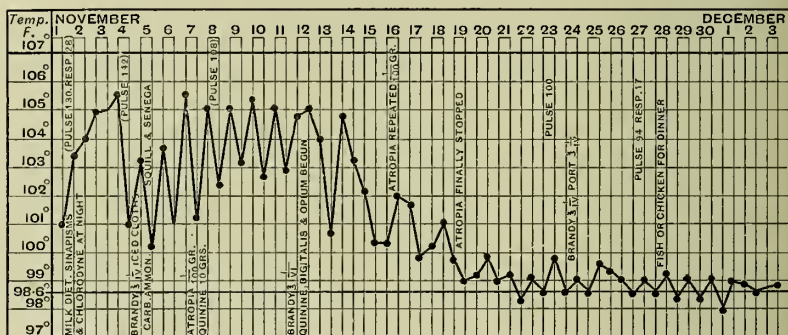


FIG. 14.

clear than natural, although I do not wish to speak too positively upon this point, as we know that the normal sound varies considerably in different persons. On auscultation, abundant moist râles were heard with equal distinctness all over both sides of the chest.

On 4th November, three days after admission, it was noted that the fever had assumed the typhoid type. He was in a state of great debility, and was bathed in perspiration. His pulse was 142, very weak and compressible; his temperature  $105^{\circ}6$  during the previous night. The râles were more abundant than ever, and now some dulness was discovered for the first time at the left apex. The following was the treatment adopted:—He was fed every hour with milk, soup, or other light nourishment of this kind; and he was ordered 4 oz. of brandy and a stimulating mixture composed of 1 drm. of carbonate of ammonia, 3 drms. of syrup of squills, and 6 oz. of infusion of senega; a tablespoonful to be taken three times a day. The application of iced cloths to the abdomen for half an hour from time to

time, temporarily lowered the temperature about  $1^{\circ}$ ; but I have since had reason to suspect that this treatment was not very efficiently carried out.

For the next eight days he was getting worse instead of better; his temperature kept very high (a dose of 10 grs. of quinine on the 7th having had very little influence upon it), he was emaciating rapidly, and the perspiration was most profuse. For the relief of this last symptom, subcutaneous injections of  $\frac{1}{100}$  gr. of sulphate of atropia were given at night, with the happiest effect; and that it was really controlled by the atropia is apparent from the following statement. On the first night it was partially checked, on the second it entirely ceased, and then the atropia was omitted. Two days thereafter it began again, but it was again arrested by a third injection. Being once more omitted, the sweating returned, so that we had recourse to it for the fourth time, and continued the injections for several successive nights, after which it returned no more.

On 12th November it was recorded that, although the perspiration was absent, there was no improvement in the other symptoms, and the emaciation was rapidly on the increase, while the temperature reached  $105^{\circ}$  every night (see Fig. 14). What, then, was to be done? Before resorting to the cold bath, we decided upon the following treatment:—In the first place, we fed him every half-hour instead of every hour; secondly, we increased his brandy from 4 oz. to 6; and, thirdly, we gave him Niemeyer's antipyretic powders (*ante*).

Within twenty-four hours there was a fall of temperature; in a week it had subsided to  $99^{\circ}$ , and he was much better in every respect. The cough was quite moderate, the acceleration of breathing and the expectoration had ceased, and the râles were almost gone, except at the right base, where, as well as the left apex, there was some dulness on percussion. From this time he rapidly gained flesh, and became quite corpulent; his tongue cleaned, his appetite was voracious, he was constantly crying out for food, and his temperature became and remained normal. After convalescence was fully established, he was put upon cod-liver oil; and when he was dismissed, some weeks afterwards, he looked as healthy a lad as one could wish to see. The chart (Fig. 14) shows the temperature from day to day, and its relation in time to the treatment which was adopted.

CASE 124.—Mary F., æt. 16, weaver; was admitted into bed 3, Ward 5, on 16th November 1876. She complained principally of weakness, of three weeks' duration. Her mother and only sister are in good health, but her father and brothers—she does not know how many—all died of consumption. She herself seems to have enjoyed good health until three weeks before admission; at that time, when

returning from her work, she began to shiver and feel stiffness in the back of her neck, and pain in the left shoulder. On reaching home the pain and stiffness were gone, but she felt feverish, had a slight occasional tickling cough, and perspired freely during the night. At the end of a week she was said to have improved somewhat, and to have been able to go about, but soon increasing weakness, which was accompanied by complete loss of appetite, sleeplessness, and profuse nocturnal perspirations, obliged her to take to bed again.

On admission, all the above symptoms, including the short tickling cough, were present, and her weakness was so marked that her legs shook very much when she attempted to stand, and her hands when she took food. Her tongue was dry and coated in the centre with a broad white thick fur, stopping short at the tip, which, with the edges, was red. She felt sickish, and had a great repugnance to taking even fluid food, although her thirst was great. Her bowels were very costive, and had been so ever since the commencement of her illness. Her menstruation began two years prior to admission, and had always been regular. Her skin was dry and pungent. Temperature,  $103^{\circ}4$ ; the following morning,  $103^{\circ}8$ ; and in the evening,  $105^{\circ}$ ; pulse, 120, of fair strength; respiration, 22. On examination of the chest, which measured 30 in. (and  $30\frac{1}{2}$  in. on forced inspiration) on a level with the nipples, musical râles were heard all over both sides, both before and behind, and just as abundant at the apices as at the bases, while at the right apex there was some dulness and increased resistance on percussion. Urine about 30 oz., clear, high-coloured, specific gravity 1020, depositing urates on cooling, and containing a small quantity of albumin, which, however, soon disappeared; no tube casts were discovered in the deposit.

*Treatment.*—On 17th November, castor-oil, 2 drms.; ice to suck, iced milk, and soup frequently. On the 18th, a pill composed of 1 gr. of quinine,  $\frac{1}{2}$  gr. of digitalis, and  $\frac{1}{2}$  gr. of opium, was prescribed, to be taken every four hours. The next day (19th), being much in the same state, the digitalis was increased to 1 gr. in each pill.

Notwithstanding the above treatment, she was going from bad to worse; her fever continued persistently very high (Fig. 15), and at 5 P.M. on the 20th reached  $105^{\circ}6$ . Her face and eyes were flushed; she had the dull, heavy, stupid expression of a typhus patient, and was very drowsy; her lips were dry and cracked; her tongue very dry, and thickly coated with a deep brown fur. There was great difficulty in getting her to take food, and she objected to everything but iced milk, which she took to the extent of a tablespoonful every quarter of an hour. Her pulse was 128, soft and regular. On this day (20th) a teaspoonful of brandy in iced water was prescribed every hour.

On November 21st she began to pass all her water in bed, and

continued to do so on the two following days. Her bowels were moved without medicine. Her breathing was very laboured, and 36 per minute,

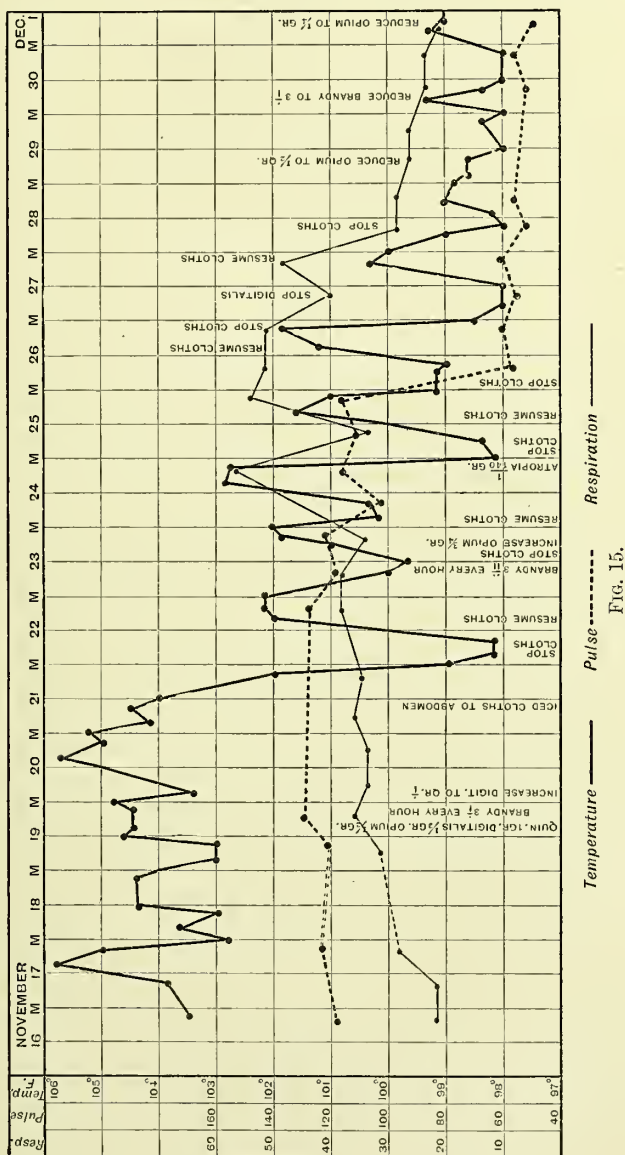


FIG. 15.

while her pulse was 128, and weak; temperature,  $104^{\circ}.4$ . She now began to expectorate slightly for the first time, her sputa being slightly rusty. The râles over the whole chest were much more abundant, and

now partly musical, partly moist; while at the right apex the dulness on percussion was more decided, and abundant coarse moist râles were there heard. On this day iced cloths were applied to the abdomen for half an hour every two hours. The following morning the temperature had fallen steadily from  $104^{\circ}\cdot4$  to  $97^{\circ}\cdot2$ , while the respiration and pulse remained as before. The iced cloths were therefore omitted, but were resumed in the evening because the temperature had risen to  $102^{\circ}\cdot2$ . From this date onwards the temperature was never allowed to rise higher than  $102^{\circ}\cdot6$ , which it only reached on one occasion, namely, on the evening of the 24th, and there was not the slightest difficulty in completely controlling it by means of the cloths.

On the 22nd the state of the chest was much as on the previous day, except that there was a suspicion of dulness at the right apex. The expectoration continued tinged with blood.

On the 23rd the brandy was increased from 1 to 2 drms. every hour, and the opium from  $\frac{1}{2}$  to  $\frac{3}{4}$  gr. in each pill.

Between the 23rd and 24th the respiration rose steadily from 34 on the evening of the 23rd, to 56 on the evening of the 24th. On the morning of the 25th it fell to 34, rising again in the evening to 54, and keeping above 50 until the evening of the 26th. On the morning of the 27th it had fallen to 40, in the evening it had risen to 48. On the morning of the 28th it had fallen to 28; on the 29th to 26; on the 30th to 24; and on 1st December to 20 (see chart).

On the evening of the 24th, the  $\frac{1}{100}$  gr. of atropia was injected subcutaneously, and repeated every night till the 29th.

The pulse, from the commencement of the illness, was persistently high and weak, and on the night of the 25th, although somewhat lowered, stood at 116. The following morning it had fallen to 58. It never rose again above 60, and on one or two occasions was as low as 48, while on the morning of the 26th, and for ten days thereafter, it was decidedly irregular both as to force and time.

The digitalis in the pills was omitted on the morning of the 27th; on the 29th the opium was reduced from  $\frac{3}{4}$  to  $\frac{1}{2}$  gr.; on 1st December to  $\frac{1}{4}$  gr.; and a few days afterwards it was stopped altogether.

To make a long story short, I content myself with two more reports, taken on 25th November and on 1st December.

On the afternoon of 25th November, the following was her state:—The countenance is more intelligent, and there is no lividity. She answers questions readily, says she feels much better, and takes food with much less reluctance; her tongue is much moister, and cleaning at the tip; bowels opened by enema. The pulse is 116, of fair strength; the respirations 54 per minute. The pulmonary physical signs are pretty much the same as at last report, but the cough is softer, and the



expectoration, which is very moderate in quantity and mucous in character, has lost the rusty appearance.

*1st December.*—Patient is perfectly intelligent, though pale, and asked for food for the first time yesterday. Her tongue is moist, though coated with a thick white fur, and her bowels have not been moved for two days. Her pulse is of fair strength, and 48 per minute. Temperature normal. No abnormality can now be discovered in the chest, with the exception of some dulness at the right apex, and slighter and more limited dulness at the left, although decidedly less than before the arrest of the symptoms. The râles have entirely subsided.

This girl remained for about two months longer in the hospital, took cod-liver oil in full doses, and left in the most perfect health, the pulmonary physical signs having quite disappeared.

CASE 125.—In the beginning of November 1876, a gentleman, Mr. B., æt. 31, consulted Dr. Brodie on account of a neuralgic affection of the head, for which he prescribed successfully, and a couple of weeks thereafter he sent him to a hydropathic establishment for change of air. He remained there for a week, and, having caught cold, returned home.

I was then requested to see him along with Dr. Brodie. We found him in a state of high fever, his temperature being  $103^{\circ}5$ . He had a dry cough, had lost his appetite, was emaciating rapidly, was sleepless, perspiring freely, and very weak. His breathing was rapid, and there was decided dulness at the left apex. Fluid food was prescribed, with a dessertspoonful of brandy every three hours; and a pill composed of 1 gr. of quinine, 1 gr. of digitalis, and  $\frac{1}{2}$  gr. of opium, every four hours.

I saw him again, three days later, on the 1st December. He had risen from his bed two nights before, had fallen, and lay exposed on the floor of his room for some time before he was discovered. We found him in a more alarming state than at the time of our former visit. He was in a high fever, exceedingly weak, and bathed in perspiration; the dulness at the left apex was still more pronounced, and musical râles were heard abundantly over the whole chest. A thoroughly trained nurse was now got for him; he was fed every hour; his brandy was increased to a dessertspoonful every hour and a half; the pills were continued, and a subcutaneous injection of  $\frac{1}{100}$  gr. of atropia was prescribed at bedtime. He was very delirious, had much the appearance of a patient in the advanced stage of typhus fever, and seemed so ill that his friends quite despaired of his recovery. Experience of previous cases, however, led me to say that, although in a critical state, we had still hope of amendment.

On the next day he was a little better, but the soup made him sick. He was therefore confined to milk, and champagne was substituted for

the brandy for a day or two. The temperature had fallen by this time to 101° in the morning, and to 99°·6 in the evening.

On 5th December the temperature was 100° at 4 o'clock A.M., 99°·6 at 8 A.M., and 99° at night. He was much improved, and the râles throughout the chest were much less distinct. The breathing was also much quieter, and the bowels had been opened by means of an enema. His pulse was 76, and stronger, but as the urine was scanty, and the pulse had been slow, weak, and irregular during the night, the pills containing digitalis were omitted. The brandy was increased to a dessertspoonful every hour, and as he was still sweating a little, the atropia was increased to  $\frac{1}{80}$  gr.

On the 6th the râles had quite disappeared, although there was still dulness in a more moderate degree, and harsh breathing at the left apex. The respiration was about 22 per minute. His temperature was 99° at 4 A.M., 97°·6 at 8 A.M., and the same at night; and from this day onward it never rose above 98°·6. His pulse, however, was 80, and weak. He was still delirious, and his urine was very scanty—24 oz. He was therefore fed even more assiduously, and the brandy was increased to 8 oz.; 3 drms. of cream of tartar, in the shape of imperial, was prescribed; and the atropia injections were continued.

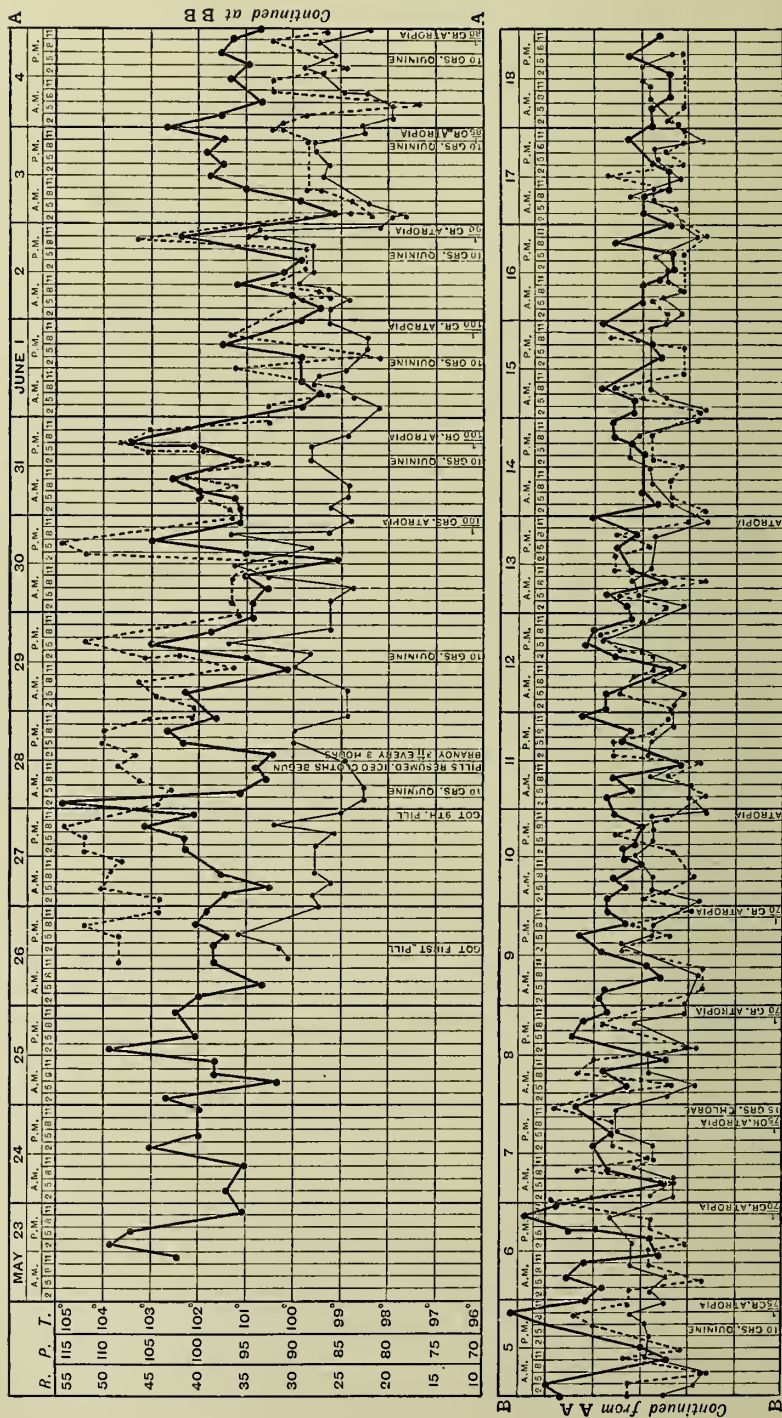
On the 9th the improvement was very marked; the delirium was quite gone; the temperature 98°; the pulse 60, of fair strength, but rather irregular; the urine in fair amount; the respirations 20 per minute; the râles throughout the chest had entirely disappeared; there was no longer harsh breathing at the left apex, and the dulness on percussion was very indistinct; he had not coughed once since the previous day; his bowels had been moved twice without medicine; his tongue was cleaning and was more moist; he was calling out for food, and suggested the propriety of getting a piece of brandered steak. He was still perspiring slightly, and therefore the atropia was continued, and 5 grs. of the hypophosphite of lime thrice daily was prescribed, the cream of tartar being omitted, as he was making water freely. His food was to be given less frequently, and the dietary was to be gradually and cautiously relaxed. This patient made a perfect recovery, and felt so well that it was with difficulty that we persuaded him to leave home during the trying months of spring.

CASE 126.—Adam B., æt. 25, carter; was admitted into the Western Infirmary of Glasgow, 20th May 1879. His father and mother seemed to have died of heart disease; and, of a family of five, two died in infancy, while a brother and sister, both older than himself, were alive and well. He had been very intemperate in his habits, but never had an hour's sickness until the onset of the present illness, four weeks before admission. It set in on a Sunday morning with a feeling of

sickness, which caused him to return to bed. In the evening he began to cough, and expectorated blood, at first black and clotted, he said, afterwards bright red. The hæmorrhage continued for four days, but in greatly diminished quantity, and consisted more of a blood-stained sputum than of unmixed blood. The cough continued severe all this time, but disappeared in great measure with the hæmoptysis about the fourth or fifth day. The day after the onset of the hæmorrhage he experienced severe pain in the right side of the chest, referred to the mammary and suprascapular regions, aggravated by coughing and by lying on the right side. A week after he lay down, the bowels began to be troublesome, moving frequently as often as five times in twenty-four hours; the stools being thin and yellowish in colour, but not very copious. They had continued in this state ever since. He had never passed any blood. At first the urine was passed very frequently, as often as every five minutes, though not much at a time, but there was no trouble of that kind now.

*Examination on admission.*—The patient was much emaciated, and very weak and exhausted. The skin was dry and hot, with perspirations at night, and temperature  $103^{\circ}$ ; pulse 110, feeble; respirations 40, shallow and noisy; pulse-respiration ratio,  $2\frac{3}{4}$  to 1. He had occasional slight cough, with scanty, clear mucous expectoration. Decubitus was dorsal. He had a slight flush on each cheek, and slight lividity of the lips. The *alæ nasi* dilated on inspiration. The tongue was slightly coated and moist. He had anorexia. The bowels were loose. There was no distension of the abdomen; no gurgling or tenderness in either iliac region; no eruption. The urine was 32 oz., high-coloured, acid, of specific gravity 1025; it contained a trace of bile, but no albumin. At the base of the right lung were signs of very moderate pleuritic effusion, namely, slight bulging with defective movements, marked dullness, feeble breathing, diminished fremitus and resonance. At the left apex (especially in the supra- and infra-clavicular regions) were defective movements, slight flattening, moderate dullness. Moist (subcrepitant), mixed now and then with dry, râles were heard, and there was increased fremitus and resonance; over the rest of the lung there was a general want of resonance, with a mixture of dry and moist (subcrepitant) râles. There was no evidence of disease in any other organ. For temperature, pulse, and respirations, see chart (Fig. 16).

*Treatment.*—26th May.—He had milk or soup every hour, the latter being avoided so long as there was looseness; also 1 gr. quinine,  $\frac{1}{2}$  gr. digitalis,  $\frac{1}{2}$  gr. opium, every four hours. The opium in the pills was increased on the 30th to  $\frac{3}{4}$  gr., on account of the looseness; but on 10th June, as he was sweating a good deal, as the other symptoms were moderating, and as there had been no motion for four days, the pills were diminished to three daily.





On 28th May iced cloths were applied to the abdomen for half an hour every two hours (it was afterwards ascertained that they had not been thoroughly used until the evening of 4th June, after which the temperature fell more decidedly). They were omitted whenever the temperature was below  $100^{\circ}$ . At the same date (28th May) 2 drms. of brandy every three hours were prescribed.

30th May.—Subcutaneous injections of atropia each night were commenced,  $\frac{1}{100}$  gr., gradually increased to  $\frac{1}{70}$ . Eight times during the course of the illness a dose of 10 grs. of quinine was given when the temperature tended to be high, which was generally in the afternoon or evening; and occasionally the body was sponged with iced vinegar and water.

10th June.—The patient looked and felt very well, though weak and thin. The tongue was moist, and only slightly coated with a white fur. The appetite was much improved. There had been no movement of the bowels for four days. The perspirations were still considerable, but only in the mornings. Pulse 80, of fair strength; respirations 25; pulse-respiration, ratio  $3\frac{1}{5}$  to 1. The temperature during the last twenty-four hours never rose to  $100^{\circ}$ , the highest being  $99^{\circ}8$ ; and during the previous twenty-four hours it only reached  $100^{\circ}$  on one occasion, and once it was normal. The cough was less troublesome than on admission; expectoration was very scanty, and consisted of clear mucus. The physical signs were improved to this extent, that the very coarse râles at the left base had disappeared, being replaced by râles which were partly musical and partly moist. The effect of the digitalis on the secretion of urine was well marked; for, on the four days preceding the administration of the pills, the amount discharged was 32, 30, 26, and 23 oz.; and, on the following four days, 60, 72, 90, and 73 oz.

It is unnecessary to give the whole of the reports which were taken from time to time, but the following are sufficient to illustrate the progress towards recovery:—

17th June.—There was decided improvement in the physical signs, the râles having almost disappeared from the chest, except at the left base, where, however, they were much less distinct than formerly. The temperature for the last few days had been normal, or nearly so, and there had been very little perspiration. The digestion was fair, and the bowels regular, though the motions were still inclined to be pale and loose. Three moderate meals daily were now allowed, and the atropia was stopped. On the 22nd, the pills were likewise omitted; but on the 25th, as the perspiration had slightly returned, the atropia injections were resumed.

2nd July.—There was still slight expectoration, which was yellower than formerly; respirations 22; pulse-respiration ratio normal, the pulse being 86, and of good strength. All râles had disappeared from the left



side of the chest, with the exception of occasional musical rhonchi posteriorly. The signs of effusion at the right base were diminishing. The temperature was normal, and the digestion natural; but the motions were still occasionally inclined to looseness. He was having good diet, including beef-steaks, etc., and, on the 1st, cod-liver oil in small doses was commenced, but was omitted on 3rd July on account of looseness, which recurred when the oil was resumed on the 8th. For this, a mixture of morphia and bismuth was given.

*1st August.*—He was going on favourably in every respect, and was rapidly gaining flesh and strength. The diarrhoea and perspirations had completely disappeared. Pulse 84, regular, of good strength; respirations 18. The expectoration was almost gone. The râles had disappeared from the chest altogether, and the dulness on percussion was much less pronounced than formerly, though there were still signs of moderate effusion at the right base. He was now taking 6 drms. of cod-liver oil daily, which was gradually to be increased to  $1\frac{1}{2}$  oz. The morphia and bismuth mixture, from which he had derived much benefit, was continued, as also 2 oz. of brandy; and the atropia injections were ordered to be given every second night, or when necessary. He now walked out in the grounds occasionally.

*14th August.*—There was steady improvement. All the symptoms mentioned in the last report were less pronounced; in particular, there was distinct diminution in the dulness all over the chest. He was much fatter, and with a good deal of colour in his cheeks.

*29th August.*—He was now practically convalescent. There were no general symptoms whatever. His colour was excellent, and he had gained three-quarters of a pound within the last week. He had neither cough nor expectoration. Respirations, 16 per minute. There was no trace of râle in any part of the chest, and the signs of pleuritic effusion at the right base were steadily diminishing. At the left base, the respiratory murmur was still somewhat feeble; and at the infra-clavicular region there remained flattening, defective resonance, and harsh breathing. There was also dulness in the supra-clavicular region.

*10th October.*—As the patient was continuing to improve steadily, and as Dr. M'Vail, who was acting for me, was able to corroborate the statements in the last report, he was sent to Lenzie Convalescent Home.

This patient was readmitted at my request for a few days on 27th November, and was examined with the following result on the 30th. At the left apex, there was slight flattening with defective expansion, and slight dulness on percussion; the breathing was a little jerky, and the heart sounds very loud. The heart had been drawn up, the apex being nearly at the nipple. At the left base there was still some dulness remaining, but the breathing was almost natural; and at the right base, where the effusion had been, there was also some dulness, and the

breathing was slightly feeble. There were no chest symptoms, and he felt in perfect health. The following note shows his progressive increase in weight :—

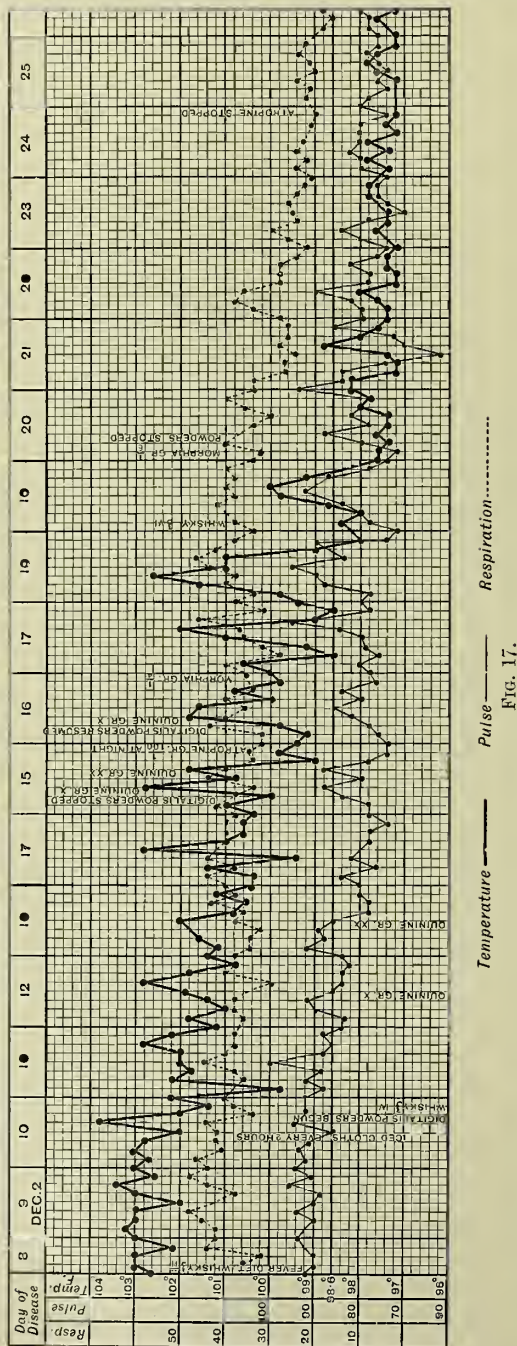
								st.	lbs.
Aug.	18.	.	.	.	.	.	.	9	1
„	25.	.	.	.	.	.	.	9	1 $\frac{3}{4}$
Sept.	1.	.	.	.	.	.	.	9	4 $\frac{1}{2}$
„	10.	.	.	.	.	.	.	9	5
„	15.	.	.	.	.	.	.	9	7 $\frac{1}{4}$
„	29.	.	.	.	.	.	.	9	9
Oct.	6.	.	.	.	.	.	.	9	9 $\frac{1}{2}$
Dec.	11.	.	.	.	.	.	.	9	11 $\frac{3}{4}$

CASE 127.—G. H., æt. 45, labourer; was admitted into the Western Infirmary of Glasgow on 28th November 1889, complaining of cough, shortness of breath, debility, and feverishness. He has two sisters and three brothers in good health, but his father is said to have died of pleurisy at the age of 26, and his mother about the same age, the cause being unknown. He himself seemed to have enjoyed good health, and could not remember having previously suffered from any serious illness.

On 23rd November, five days before admission, the patient, who had been suffering from a cough for a fortnight, went into a shed to turn some straw, and while so engaged “saw a red flash before his eyes,” which was immediately followed by a period of total darkness, but without unconsciousness. Soon after this he began to complain of severe pain in the right side of the chest and right breast, and to a less extent in the left. This was followed by shortness of breath, weakness, and a feeling of chilliness, but there was no rigor.

On admission he was found to be very weak and rather emaciated, and his temperature was high, the minimum in twenty-four hours being 102°·2, and the maximum 103°·2; and he was inclined to delirium. The pulse was from 90 to 94, and was weak, and the respirations from 32 to 48 per minute. (For temperature, pulse, and respiration during the illness, see chart, Fig. 17.)

Over the upper lobe of the left lung there was distinct dulness on percussion, with increase of vocal fremitus. In front, subcrepitant râles were heard, with harsh, almost tubular breathing, and at the shoulder this tubular quality was especially marked, where also the expiration was prolonged. The expectoration, which was scanty and mostly mucous in character, was sent to Dr. Joseph Coats (on 1st December), who found tubercle bacilli, though not abundantly. The abdomen was rather full, and there was some doubtful tenderness in the iliac regions; the bowels, which were habitually costive, had not been moved for a week. There was a total absence of rose-spots throughout. The urine,



which was scanty, high-coloured, clear, acid in reaction, and had a specific gravity of 1023, contained albumin very decidedly, but the chlorides were nearly in normal amount.

*Treatment.*—On admission he was put upon fever diet (fluid food, milk, soup, etc.) at short intervals, with 2 oz. of whisky. On 3rd December (tenth day of illness) he began to be fed every hour; the whisky was increased to 4 oz., and on the 11th to 6 oz. The application of iced cloths to the abdomen for half an hour every two hours was commenced at 10 A.M., and was continued so long as the temperature exceeded 100°. A powder containing 1 gr. quinine, 1 gr. digitalis, and  $\frac{1}{2}$  gr. opium, repeated every four hours, was commenced at 4 P.M. These powders were continued until the morning of 13th December, with the exception of one day (from 6 A.M. on 8th December to 6 A.M. on 9th December), when they were suspended by the house-physician, owing to marked contraction of the pupils.

On 8th December (*fifteenth day of illness*),  $\frac{1}{100}$  gr. sulphate of atropine was administered subcutaneously, and continued nightly till 17th December. On four days quinine was given, namely, on 5th December (noon), 10 grs. and (2 P.M.), 20 grs.; on 8th December (9 A.M.), 10 grs., and (2 P.M.), 20 grs.; and on 9th December (9 A.M.), 10 grs. On two occasions he got a subcutaneous injection of morphine at night, owing to sleeplessness, namely, on 9th December ( $\frac{1}{4}$  gr.) and on 12th December ( $\frac{1}{8}$  gr.). He was most carefully nursed throughout, one nurse being in attendance by day, and another by night.

The following notes—taken from the ward journal—sufficiently indicate the progress of the case, and should be read in connection with the accompanying chart.

30th November 1889 (*seventh day of illness*).—The râles at the left apex are coarser, and moist râles, diminishing in distinctness, are heard down to the very base of the lung.

1st December 1889 (*eighth day of illness*).—The râles at the back of the lung are less distinct to-day. Bowels moved; motions loose and pale, but not offensive.

3rd December 1889 (*tenth day of illness*).—At the left apex the dulness is more pronounced, and the movements there are distinctly diminished. For the last two nights the patient, who has been inclined to wander slightly all along, has been markedly delirious, talking constantly, and he has had very little sleep. The tongue is dry, coated, brownish, and tremulous.

4th December 1889 (*eleventh day of illness*).—Bowels moved last night, the motion being solid, and nearly of the natural colour.

8th December 1889 (*fifteenth day of illness*).—Patient's general condition is somewhat worse. He rambles constantly night and day, and sleeps very little. The hands tremble, and he occasionally fumbles with the bedclothes. The albumin, although diminished, is still present in the urine.

11th December 1889 (*eighteenth day of illness*).—The râles have almost entirely disappeared from the front of the left lung, but they are abundant at the base posteriorly, and very similar in character to those which were at the apex. At the right base there is now some dulness on percussion, and an abundant fine subcrepitant râle is heard.

13th December 1889 (*twentieth day of illness*).—On the right side a subcrepitant râle has now appeared at the level of the nipple. On the left side a sonorous râle is heard in the supra-clavicular, and a few faint mucous and sibilant râles in the infra-clavicular region.

17th December 1889 (*twenty-fourth day of illness*).—With the exception of a slight sibilus at the right base, the râles have entirely disappeared from the chest. Slight delirium still persists, although the temperature had for some days been subnormal. Patient is very drowsy



and sleeps constantly, being, however, easily aroused to take nourishment. The albumin in the urine is no longer present.

*21st December 1889 (twenty-eighth day of illness).*—All physical signs of disease have disappeared from the chest, and all special treatment by drugs has been stopped. He remains very prostrate, and there is still occasionally slight delirium.

*27th December 1889 (thirty-fourth day of illness).*—Though still very weak, he is picking up flesh and strength considerably, and is now perfectly conscious and observant of what is going on around him.

*7th January 1890 (forty-fifth day of illness).*—He has been steadily and rapidly improving and gaining strength, and has to-day been allowed, for the first time, to rise for an hour.

On *23rd January 1890*, I requested my colleague, Professor Gairdner, to examine this patient's chest, which he kindly agreed to do, and in a letter to me he says, "I have examined G. H., and find that there is nothing that can be very definitely stated as abnormal in the physical signs in his chest."

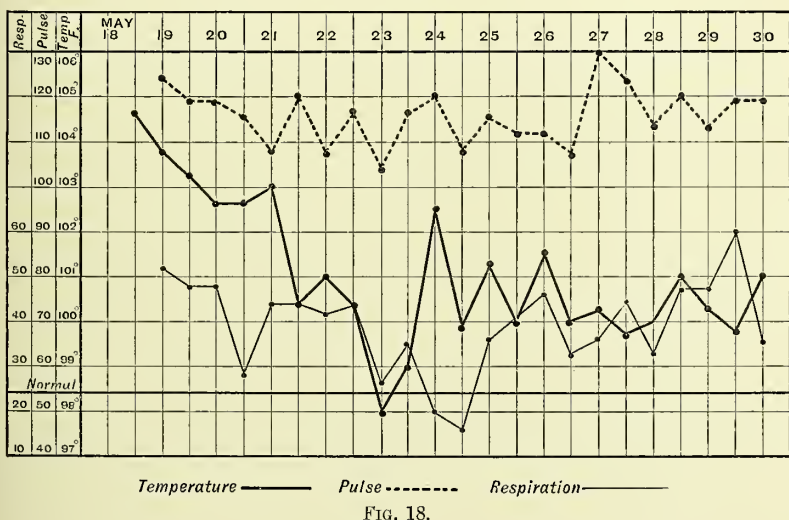
As illustrating the question of diagnosis, the two following cases may be quoted, which terminated fatally. In the first the symptoms were almost identical with those which have just been described, and although it came under observation too late, when there was hopeless disorganisation of the lungs, several of the symptoms yielded almost immediately to the line of treatment already detailed. In the second case the fatal issue was evidently due to the complication of perforation of the lung.

**CASE 128.**—A man, *æt.* 25, was admitted into the Western Infirmary on 18th May 1879, complaining of severe cough of thirteen weeks', and debility of ten weeks', duration. He was so ill as to be unable to give an account of his family and personal history, and it was with difficulty that the following facts were ascertained. He was a moulder, and much exposed to heats and colds, and in consequence, he thought, severe cough set in about thirteen weeks before admission, which did not, however, prevent him from continuing his work. But one day, about three weeks thereafter, while carrying a piece of hot iron, a severe rigor set in, and his legs shook so much that he feared that he would fall. On returning home his limbs were said to have been swollen. A fortnight after this he returned to work, but was obliged to give it up in a couple of weeks, owing to increasing debility. To these symptoms were added anorexia, thirst, emaciation, hoarseness, and, about a month before admission, deafness, which steadily increased. He was a very intemperate man, and his cough was aggravated by lying out at night while intoxicated.



On admission he was in a state of great debility, was much emaciated, and bathed in perspiration. His pulse was 120, soft and compressible, his temperature  $105^{\circ}$ , and the respirations 44, the pulse-respiration-ratio therefore being  $2\frac{3}{4}$  to 1. His tongue was coated with a thick white creamy fur; he was thirsty, and had no appetite, but his bowels were regular. His intellect was rather obscured, his face flushed, his lips and nails rather livid. His decubitus was upon the back; his cough was frequent and soft, and the expectoration purulent, and he was very hoarse.

On examination of the chest, moist râles were heard over almost the whole of both lungs, especially the left, and more markedly at the apices than at the bases. In the former situation there was decided



dulness on percussion, and an approach to cavernous respiration. The day after his admission—the 19th of May—treatment was commenced. A dessertspoonful of brandy was given every two hours, and half a glass of milk or soup every half hour,  $\frac{1}{100}$  gr. of sulphate of atropia, gradually increased to  $\frac{1}{5}$  gr., was injected subcutaneously every night, and iced cloths were applied to the abdomen for half an hour every two hours. On the following day the pills of quinine, digitalis, and opium, already referred to, were added.

The result of this treatment was striking and immediate. In two or three days the perspiration had almost ceased, and within five days the pulse had fallen from 124 to 108, the respirations from 52 to 168, and the temperature from  $105^{\circ}$  to  $98^{\circ}$  (see chart, Fig. 18).

Considering the duration of the disease before the patient came under observation, and the extent to which the lungs were evidently

disorganised, this partial result excited much surprise, and led us to believe that, had we seen the case in an earlier stage, and before the lungs had become hopelessly damaged, a successful issue might, with much probability, have been anticipated.

After the 23rd, all hope of a favourable result having been abandoned, the treatment was no longer persevered with, and the patient died on the 30th of the month.

The post-mortem examination was made by Dr. Coats. The lungs were moderately adherent, especially the left. At the apex of this lung several large cavities were observed, while the remainder was extensively consolidated, having generally that dark mottled appearance which has suggested the name of frog-spawn condensation. The right lung was similarly, though not quite so extensively, affected.

The larynx was much ulcerated, the ulceration being deep, with ragged edges, and the left vocal cord, in its vicinity, was highly œdematous,—so much so, indeed, as completely to occlude the ventricle of Morgagni. The mucous membrane of the epiglottis and of the ary-epiglottic folds was much thickened, but not ulcerated. The mucous membrane of the trachea, like that of the bronchi, was intensely hyperæmic. The right ventricle of the heart was greatly enlarged, and numerous pale globular vegetations—one or two about half the size of a hazel-nut—sprang from the inside of the apex. In the left ventricle none of these were observed. The liver was enlarged, weighing 4 lb. 2 oz., and was slightly fatty.

CASE 129.—Jane D., æt. 19, mill-girl; was admitted into the Western Infirmary of Glasgow on 1st March 1880, having been seen by me on the previous day, in consultation with Dr. William Young of Parkhead. The history of her illness, as obtained from her mother, was that, in the beginning of winter—it might be November—she caught cold, but not on account of any unusual exposure; and since then she had a trifling cough.

Two months ago, while at work, she had an attack of hæmoptysis, and also during the same evening after going home; but although the quantity of blood was said to have been considerable, no precise estimate could be obtained. The blood at first was said to have been bright in colour, rather thickish, and not frothy. It continued to be expectorated during the next three days at frequent intervals, and for some days following she continued to have blood-tinged sputa. Previously to this, the cough was unaccompanied by expectoration, but a pain was occasionally complained of under the left nipple, and also at times under the left clavicle, during the act of coughing. About four weeks before admission, her appetite began to fail, and, ten days ago, she returned from her work complaining of shivering and general malaise, followed

by burning heat of skin, and perspiration. At this time, too, the cough became more frequent, and she began to suffer from some shortness of breath. For the last few days the bowels, which were generally costive, had become rather loose.

She seemed to have enjoyed good health until her present illness began; indeed, her mother said she was exceptionally healthy and very stout. Menstruation began about 15, and had been very irregular, the last flow having been about four months ago. Her father and mother were alive and well. She was one of a family of eleven, three of whom died at the ages of 10, 18, and 20, respectively, of consumption; the first, said to have been of galloping consumption, after nine weeks' illness.

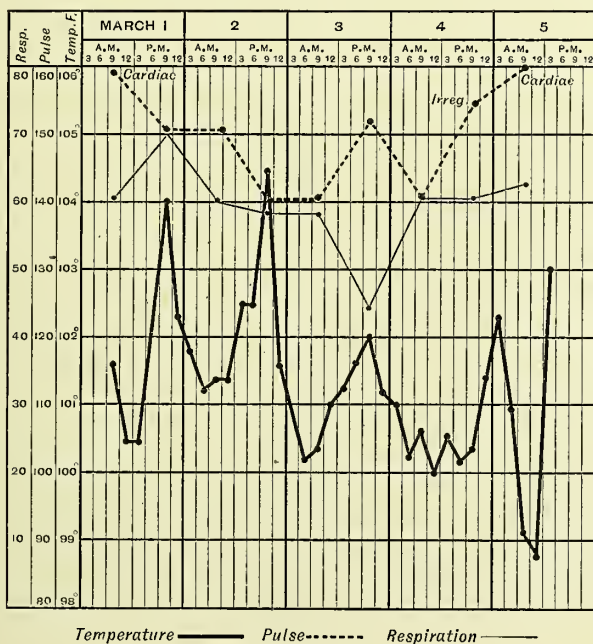


FIG. 19.

*Examination on morning of admission.*—There was great prostration and slight emaciation. Sweating was profuse and pretty constant. Decubitus was dorsal, with the head elevated. She had great shortness of breath, slight lividity of the cheeks, the tongue was dry and cracked, great thirst, complete anorexia, bowels loose (three or four motions in twenty-four hours). Cough was frequent and soft, but there was no expectoration. The pulse was so rapid and feeble that it could not be counted, but the cardiac pulsations were 160 per minute, respirations 60. The abdomen was natural, no distension, no tenderness anywhere, even on the firmest pressure, and no eruption. *Right lung.*—There

was no dulness anywhere, but bronchitic râles all over; moist and pretty abundant at the base, musical above. *Left lung.*—Breathing was feeble over the whole lung, with distinct dulness and resistance on percussion in the left infra-clavicular region, from the second rib downwards for a couple of inches, and to a less extent in the corresponding region behind. In the last situation there was an indistinct subcrepitan râle, which, however, was more decided at the base. The urine was acid, scanty, with a copious deposit of urates; specific gravity, 1028. The chlorides were normal, no albumin. For the temperature, pulse, and respiration, see chart, Fig. 19.

The opinion formed with regard to the case was, that it was one of acute phthisis, but as some doubt had been thrown on the accuracy of my diagnosis in former cases, I determined to get the opinion of two of my colleagues, who, however, could not satisfy themselves as to the nature of the case.

The patient died on 5th March, five days after admission. The post-mortem examination was made by Dr. Foulis, with the following result:—The body was not emaciated. On opening the chest, the left lung was found collapsed, and the left pleura, which was covered with a thin grey layer of very recent soft lymph, was filled partly by air and partly by slightly turbid serum. There were a few old adhesions near the left apex. The left lung was quite compressed and flattened against the spine. An attempt was made to detect a possible rupture in the lung tissue by filling the chest with water and inflating from the trachea, but without success. On laying the lung open, it was seen to be studded with numerous miliary tubercles, in groups and single. At the lower and anterior part of the lung was a small pus-filled cavity about the size of a plum, and near it several minute cavities. In the vicinity of these cavities the tubercles were softer than elsewhere. In the right lung the tissue was bright red, crepitant, and free from tubercles, except at one or two spots. On the posterior wall of the larynx was a slightly eroded patch, with an apparent infiltration of the mucous glands near it. No tubercles were seen in any other organ.

After the publication of the first three cases which I have mentioned, it was curious to note the great difference of opinion amongst eminent physicians as to their nature and the influence of the treatment adopted. Thus the late Dr. Hilton Fagge thought that they were cases of acute pneumonia of the apex of the lung, and he believed that we may confidently diagnose such a disease from phthisis by its sudden and definite invasion, often with shivering. Dr. Clifford Allbutt, on the other hand, admitted the accuracy of the diagnosis, but thought that the arrests were part of the natural but occasional course of the disease. Dr.



James B. Russell, Medical Officer of Health for Glasgow, and formerly physician to the Fever Hospital, says: "They raise the question in the practitioner's mind of the possibility of saving a patient now and then. This is, I think, done very satisfactorily. I have myself no doubt with reference to the possibility of recovery from acute miliary tubercle, from the fact that, in fever post-mortems, I have not infrequently found the lungs as if full of sand, from the calcareous minute nodules of transformed tubercle, and this in persons having all the appearance of health, and sometimes with no recoverable history of illness."

Finally, the late Sir Robert Christison's opinion is summed up in the following words: "Sceptics will say that there is no satisfactory evidence of the peculiar forms" of disease described, "except their presence on dissection. But I can say . . . that your histories exactly correspond with those of all the cases of galloping consumption which I have seen, and whose nature was demonstrated by examination after death. I used to see such cases not infrequently when I was hospital physician here, and was struck—paralysed, in short—by the utter hopelessness of accomplishing even any material palliation by any sort of treatment. Your success is therefore most remarkable."

But, waiving the opinion of exact diagnosis, I think it must be generally admitted that these patients were suffering from acute pulmonary affections which were hurrying them to their graves, and that without doubt it was the treatment which saved them; for it must be observed that each of the remedies was given with a very specific aim, and fulfilled the object for which it was administered. Thus, in the first case, the atropia was injected with the view of checking the perspiration, which it entirely arrested, while the quinine, digitalis, and opium were conjoined with the use of iced cloths, with the view of bringing down the fever, and there followed an immediate and steady fall of temperature; and in the second case, the quinine, digitalis, and opium having failed to counteract the fever, iced cloths to the abdomen were superadded, upon which the temperature fell in less than twenty-four hours from  $104^{\circ}$  to  $98^{\circ}2$ , and we had no difficulty thereafter in completely preventing any undue elevation of temperature.

Such are the kind of cases which should be brought under the notice of those who, in these days of scepticism, are inclined to sneer at the efficacy of drugs.



## II.

### CANCER OF THE LUNG, COMPLICATED WITH SECONDARY CANCER OF THE LIVER.

CASE 130.—A. M'Q., æt. 65, a riveter by trade; was admitted to Ward 2 of the Western Infirmary on 9th November 1892, complaining of swelling of the feet, legs, and abdomen, of two months' duration.

He states that his father died at the age of 100, his mother at 90. He is the youngest of a family of four brothers and three sisters. All the rest are abroad, and he has no information about them. He has been exceptionally healthy, never having been a day ill until the commencement of his present complaint. About three months ago he suffered from a pain in the left loin, which he described as a "soreness," and attributed to exposure. Two or three weeks afterwards his feet began to swell. The swelling increased for some time, and then remained stationary, but it was always worst at night after his day's work. There was no swelling of the face until two or three days before admission, when there was a little in the mornings. About two months ago the abdomen began to swell, the enlargement commencing upon the left side. It increased in size, and a few days before admission he discovered that it felt like a hard lump. Within the same time it has been somewhat tender on pressure. For three weeks he has had shortness of breath, especially on going uphill. He states that he passed the usual quantity of urine before admission, but since then it had been scanty.

On physical examination, marked œdema of the lower extremities and swelling of the abdomen are found to be present. There is a great and irregular enlargement of the liver, the surface of which is nodulated, and tender to pressure. The liver measures in the axillary line,  $4\frac{1}{2}$  in.; in the nipple line,  $7\frac{1}{2}$  in.; and in the middle line,  $7\frac{1}{4}$  in. The vessels are atheromatous. A systolic murmur is present, loudest at the apex of the heart and in the aortic area, and the apex is displaced one inch to the left and slightly downwards. On the right side of the chest, in front, there is marked dulness, extending to the lower edge of the fourth rib, and  $1\frac{1}{2}$  in. beyond the middle line. Over this area there are feeble breathing and decreased vocal fremitus and resonance. Here, too, the

systolic murmur is very distinctly heard. The veins in the neck and in both upper extremities are much distended. Examination of the urine gave the following results:—Quantity, 16 oz. ; specific gravity, 1028 ; high colour, albumin absent ; a few uric acid crystals. The temperature is normal.

The case was diagnosed as one of cancerous enlargement of the liver, and cancerous tumour of the right lung (leaving it undetermined which was the primary lesion), complicated with disease of the aortic valve, and perhaps also mitral incompetence.

The treatment consisted in frequent light feeding, regulation of the bowels, and stimulation.

The patient gradually grew weaker, and died on 26th November.

At the post-mortem the following conditions were discovered:—The heart was considerably enlarged, the enlargement affecting mainly the left ventricle. The aortic curtains were thickened, the left and anterior curtains being somewhat coalesced and infiltrated with lime. The water test revealed slight incompetence. The left lung was non-adherent, and showed hypostatic engorgement and œdema. The right lung was firmly adherent about its middle parts. At the lower parts of the upper lobe anteriorly, there was a bulky condensation, consisting partly of a white tumour tissue and partly of a grey condensation. The tumour tissue bore special relation to the bronchi, surrounding and incorporating the stem passing to the area concerned, and also extending along some of the principal branches in this part. The spleen and kidneys were somewhat enlarged, but presented nothing remarkable. The liver was enormously enlarged, weighing 198 oz. It was the seat of great multitudes of tumours, varying in size from mere white little molecules to 2 in. in diameter. The tumours were very soft in consistence. There was no tumour in the intestine. Those in the liver and lung were of a cancerous nature. The lung tumour, on microscopic examination, was found to be a scirrhus cancer. Dr. Coats regarded it as the primary lesion.

### III.

#### SHELL OF HAZEL-NUT IN RIGHT BRONCHUS.

CASE 131.—C. M'D., æt. 16, a domestic servant, was admitted to Ward 7 on 16th March 1893, complaining of cough, wheezing, and shortness of breath, of five months' duration.

The family history is unimportant, and the patient has been quite healthy but for frequent headaches. She is not usually costive.

Five months ago she was cracking a nut in her mouth, when the shell broke into several pieces. At the moment she happened to laugh, and accidentally "swallowed" the nut. As it passed over she felt a "jag" in the throat at the level of the larynx, and had a sensation of choking, accompanied by violent coughing. The pain and dyspnœa, which were very alarming, lasted for ten minutes, and then passed off. She went at once to a doctor, who made her drink some water, and said she had probably merely swallowed the nut, but in doing so had hurt her windpipe. Very shortly after the accident her respiration became noisy and wheezing, and this symptom had never disappeared. A fortnight afterwards she became feverish, and for two days suffered from headache. She took to her bed, to which she was confined for eight weeks. A week after the fever she developed a cough, and a feeling of soreness set in at the base of the right lung, 3 in. below the angle of the scapula; it was aggravated by drawing a deep breath or by coughing, and lasted for a month. The cough persisted for a month longer, and was accompanied by expectoration, at first white, frothy, and slightly streaked with blood; afterwards yellow, and free of blood. At this time she was said to have had congestion of the right lung. While in bed she perspired much, but not more at night than in the day. This ceased when she began to go about. From Christmas 1892 until seven weeks before admission she was not confined to bed, and had no other symptom than the wheezing. About the end of January she again saw a doctor, and was ordered back to bed. She was told she had inflammation of the windpipe, and fly-blisters were applied. Since then she has kept her bed. Her voice has never been affected during her illness.

She has lost flesh and colour. She has also had frequent bleedings

from the nose, and occasionally from the ears. These occurred at irregular intervals. The attack sometimes lasted for a week, and was often repeated at night and in the morning for several days. She has only menstruated twice, once in December and once a fortnight before admission. On the latter occasion she caught cold, became feverish, and suffered from headache. Her cough also got worse. Since admission she has noticed a diminution in the quantity of her urine.

On the day of admission Dr. Walker Downie examined her larynx, and found it normal.

On examination, the patient appears somewhat pale. The wheezing respiration is distinctly audible on standing beside the bed. Dulness is present at the right base behind, extending upwards to within a short distance of the angle of the scapula. Musical and wheezing râles are audible all over the right side of the chest, especially behind and towards the base. Respiration is weaker all over the right side of the back than on the left, and the vocal resonance and fremitus are diminished in the dull area. The expectoration is free from blood.

The heart and other organs are healthy.

She remained in much the same condition until 28th March, when, after a little coughing and expectoration of blood-stained sputa, she coughed up two small pieces of nut about one-eighth of an inch square. There was a slight soreness in the throat before they were brought up. There was no further change until 3rd April, when she expectorated another piece of nut-shell, equal in size to about two-thirds of the shell. No blood was expectorated with it, but its passage hurt the throat considerably. The wheezing stopped immediately after the shell had been got rid of, and thereafter all her symptoms rapidly disappeared. Within a few days the cough had completely ceased, and shortly afterwards the basal dulness cleared up entirely. She felt in every way quite well, and was dismissed on 3rd May 1893.

## IV.

### CASES ILLUSTRATIVE OF MEDIASTINAL TUMOURS.<sup>1</sup>

THE cases which form the subject of the following remarks, though comparatively rarely met with, are not only interesting in themselves, but are calculated to afford instruction which may be of use in everyday practice.

CASE 132.—The first case is that of a married man, an iron-moulder, æt. 44, who was admitted into the Western Infirmary (Ward 2, bed 6), on the recommendation of Professor Simpson, on the 11th November 1874, suffering from cough and expectoration of twelve months', spitting of blood of five months', and swelling of the neck with dyspnœa on exertion, of three months' duration. His father died at the age of 48 of "inflammation of the lungs," and his mother at 70. He has two brothers and one sister alive and well. From the age of 14 to 24 he worked as an iron-moulder; after that he was in the army for twelve years, and was stationed at different times in the West Indies, Gibraltar, and Corfu, during the whole of which time he enjoyed excellent health. At the age of 36 he left the army, and resumed his former occupation. His work was very laborious, and entailed much exposure to heat and cold, but his health did not suffer in consequence, as far as he knows. About twelve months ago a slight dry cough set in, accompanied, in a few weeks, by expectoration, which gradually increased in amount; and five months ago, having caught a severe cold, the cough became violent and the sputa streaked with blood, and since that time he has frequently brought up small quantities of blood. About three months prior to admission he began to experience giddiness, oppression, and a sense of suffocation on making violent muscular exertion, especially on stooping, lifting heavy weights, etc., but these symptoms passed off on assuming the erect posture, or after resting. About the same time slight puffiness of the neck was observed, and, three weeks ago, all his symptoms being aggravated, he was obliged to give up work. He never complained of headache, but, on stooping or

<sup>1</sup> Abstract of a Clinical Lecture, delivered in the Western Infirmary of Glasgow.



coughing, his sight became dim, everything appearing as if in a mist. For a year past he has occasionally felt a dull, aching pain, sometimes of a burning character, shooting through from the right breast to the scapula, which is aggravated by hard work; and for the last six weeks, on carrying his hand backwards towards his shoulder, a pain seizes him in the front of the upper arm below the shoulder, and prevents him from completing the act. His general health seems to have been above the average, although he has taken stimulants pretty freely.

The patient is a fine healthy-looking man, although he is labouring under a very serious disease, and the following is an analysis of his symptoms:—

In the first place, there are well-marked symptoms of pulmonary disorder. He has cough, expectoration which is frothy and mucopurulent, and sometimes bloody; and when he coughs, stoops, or undergoes exertion of any kind, he complains of shortness of breath. On placing him upon his back, and exposing the front of the chest, it is observed that the movements of respiration are not so free at the upper part of the right side as they are at the left. In that situation there is marked dulness upon percussion, diminishing, however, in intensity from the apex downwards. The vesicular murmur is absent, and is replaced by tubular breathing at the apex of the lung, and there the vocal resonance is increased. The same physical signs are present, though in a less degree, at the upper part of the lung posteriorly, and they lead to the conclusion that the top of the lung is in a state of consolidation. Now, consolidation at the apex of the lung in the majority of instances leads one to suspect phthisis, especially when combined with hæmoptysis, but the patient is neither weakly nor scrofulous, nor does he present the general symptoms of phthisis. There are, moreover, certain peculiarities in his case pointing to a very different conclusion. In the first place, the dulness is not limited to the area of the lung; it extends across the sternum, and a little to the left of that bone, whereas in simple consolidation of the lung this never occurs.

When fluid is effused into the cavity of the pleura, that membrane is put upon the stretch, and, as a consequence, the dulness, which is one of the most marked of its physical signs, often extends beyond the middle line; but the theory of pleuritic effusion is untenable in this case, because then we should probably have no bloody expectoration, and diminished instead of increased vocal resonance, and because an effusion of fluid, limited to the upper part of the chest, is not common.

In the second place, on listening to the respiratory murmur, it is found to be normal at the left base, but very feeble at the right; and as there is no dulness in the latter situation, we are led to suspect that there is some interference with the free entrance of air into the right lung.

Thirdly, there is marked dilatation of the superficial veins of the arms, head, neck, and top of the chest, especially upon the right side, which leads to the conclusion that there is some impediment within the chest to the free return of venous blood to the right side of the heart; and doubtless the giddiness and dimness of vision on stooping, etc., is due to the increased obstruction thereby produced. In addition to the varicosity of the veins, there is distinct swelling of the neck, which pits upon pressure, thus proving the presence of œdema, which is evidently consequent upon the venous engorgement.

Lastly, on applying the fingers over the radial arteries, it is found that the pulse at the right wrist is much more feeble than that at the left, thus showing that there is some impediment to the passage of arterial blood to the right arm.

Putting all these circumstances together, we are led to the conclusion that there is a tumour in the anterior mediastinum which has compressed and irritated the upper portion of the right lung, and induced the consolidation already indicated. This tumour must press upon the right bronchus, thus accounting for the feeble breathing on that side; upon the subclavian artery, thus accounting for the feeble pulse at the right wrist; and upon the vena cava superior, or innominate veins, inducing the dilatation of the superficial veins and the œdema.

It may be interesting to compare this case with the following, which occurred in the practice of the late Dr. Graves:<sup>1</sup>—

CASE 133.—“James Byrne was admitted into the hospital on the 23rd October 1834, and had been in the hospital before for a considerable time. He states that, eighteen months previous to his last admission, he was exposed to wet and cold, which produced a feverish attack, with symptoms of local inflammation in the lung, manifested by cough and difficulty of breathing. These were soon afterwards followed by dropsical swelling, and he applied at this hospital for relief. After remaining under treatment for about two months, he began to improve, and left the hospital, as he states, quite relieved. He enjoyed tolerably good health, and continued to work at his trade as a bricklayer, until about five weeks before his last admission, when he was again attacked with cough and difficulty of breathing, accompanied by œdema of the left side of the chest and left arm. On examining him after his admission, the following phenomena were observed:—The left side of the face and neck were slightly œdematous; the left external jugular vein, with its intermediate branches engorged and very prominent; the left arm and left side of the chest œdematous, and pitting on pressure;

<sup>1</sup> “Clinical Lectures on the Practice of Medicine,” Dublin, fourth edition, vol. ii. p. 184.

no affection of the bronchial mucous membrane or parenchyma of the lungs, sufficient to account for the cough, could be detected by auscultation; considerable dulness over the situation of the heart, and extending upwards over the sternal region on the left side; the right sternal region sounded clear and natural. The heart had not been removed from its normal situation; its pulsation could be felt over the ordinary extent, and no more, and they communicated a natural impulse to the finger. On applying the stethoscope over the heart, its sounds were found to be regular and natural, but, on placing it higher up, over that part of the sternal region which was dull on percussion, a loud *bruit de râpe* was heard."

Dr. Graves attributed the symptoms to the presence of a solid tumour developed in the chest, the nature of which he could only guess at, and that it was situated in the anterior mediastinum, close to the region of the aorta.

CASE 134.—On the 28th November 1871, a ship-carpenter, æt. 32, was admitted into the Royal Infirmary, under my care. In the month of February, while at sea, he was a good deal exposed, sometimes having his clothes wet for a whole week. About this time he began to cough a little, and the cough never left him, although he improved a good deal under treatment during the summer months. In April shortness of breath set in, with general pain over the front of the chest, shooting through to the back between the shoulders. At this time, too, the veins of the right side of the neck and chest became distended, and the face gradually assumed a swelled and dusky appearance. During the spring he fainted three times, at intervals of some weeks, on each occasion after drinking a teacupful of cold water. All the above symptoms had been on the increase for three months preceding his admission. He was unable to lie upon his back, but breathed pretty freely sitting up, or upon either side, especially the left. His tongue was clean, his appetite fair, his bowels regular, and his temperature 98°·3. His father was alive at the age of 72, his mother at 65, two brothers at 44 and 40, and four sisters at 43, 35, 30, and 26, all of them apparently enjoying good health. Two brothers died in infancy, and one at the age of 35, of hip-joint disease.

Now, let me refer shortly to a few of the more prominent symptoms stated in this report, or observed in examination of the patient. In the first place, the patient had cough and mucopurulent expectoration, and on applying the stethoscope to the chest walls in the upper part there were dry musical râles, while over the bases of the lungs coarse moist râles were detected.

There were thus evident indications of bronchitis, but on examining his chest there were a great many very striking symptoms besides; for we found, on listening to the breathing on the two sides, that it was decidedly louder and more marked upon the right side than upon the left. On inspecting the front of his chest, too, the movements of respiration, particularly at the upper part, were found to be defective. There was marked dullness and increased resistance upon percussion over the whole of the sternum, more marked above; and not only over the sternum, but to a considerable extent on each side of it, especially to the left, in which direction it extended at least two inches. We noticed likewise that the upper part of the sternum was somewhat prominent. On placing the hand upon the chest over the dull area, and making the patient speak, the vocal fremitus was observed to be almost entirely absent, and on applying the stethoscope the respiratory sounds could hardly be heard. Then we endeavoured to find out the situation of the apex beat, but failed to discover any at all. On applying the stethoscope, however, over the præcordial region, the sounds of the heart were clear and pure. They were most distinct over this region, which led to the supposition that there was no very great dislocation of the heart. On feeling the pulses at the wrists, it was noted that the left was weaker than the right. But the most remarkable symptom, having reference to the organs of circulation, was the enlargement of the superficial veins of the face, neck, chest, and abdomen, particularly of the front of the chest and abdomen, and which was more marked upon the right side than upon the left.

The most distressing symptom in this case was dyspnœa. The patient could breathe best when he was sitting up in bed. He could breathe pretty freely when lying upon either side, especially upon the left; but it was quite impossible for him for any length of time to lie upon his back, with his head low, the dyspnœa became so urgent. Another feature was hoarseness, which had been observed for about three months; and there was this peculiarity about it, that if we made him turn his head to the right shoulder, his voice was comparatively clear, but if towards the left, then the hoarseness became decided; and if we made him lie upon his back, with his head low, his voice became extremely husky. He likewise complained of pain occasionally, but this was not an urgent symptom. It was not constantly present, and he described it as sometimes being of a shooting



character, shooting through from the front of the chest to the back.

In the diagnosis of difficult cases, it is necessary for us to take into account two sets of symptoms,—symptoms which are present, and others which are conspicuous by their absence; positive symptoms, that is to say, and negative symptoms. What, then, were the negative symptoms in this case? On applying the hand over the seat of the dulness, we could detect no purring tremor; nor could we feel anything in the shape of pulsation; nor, on applying the stethoscope, could we detect the slightest trace of a murmur. There was no evidence of pressure upon, or irritation of, the sympathetic nerve, for the pupils were natural. There was manifestly no pressure upon the œsophagus, for the patient could swallow perfectly well; nor was there any trace of dropsy; and, lastly, there was a total absence of fever.

These, then, were the positive and the negative symptoms in this case, and the question came to be, What was its nature? I have very little doubt that we had here also to deal with a tumour in the anterior mediastinum, for most of the symptoms I have described correspond with this condition. There was in front of the chest dulness, and increased resistance on percussion; there were the defective movements in the same situation; there was the deficiency or almost total extinction of the respiratory sounds; there was the almost total absence of vocal fremitus; and there was slight prominence of the sternum, which is sometimes noticed in these cases. But how can we account for the dyspnoea, and the weaker breathing upon the left side? If there is a tumour in the anterior mediastinum, it is likely to press upon the large bronchial tubes, to interfere with the free entrance of air into the lungs; and it is not improbable that it should press more upon the left bronchus than upon the right, and hence a smaller quantity of air would enter the left lung than the right, and the breathing, as we found, would be weaker upon that side. And how can we explain the hoarseness? A laryngoscopic examination showed that there was congestion of the vocal cords, and nothing is more likely to occur than congestion of these parts when there is a tumour within the thorax interfering very seriously with the circulation. The variability of the hoarseness previously noted might, however, lead one to suspect that it was not entirely due to congestion, that it might be due in part to the pressure of the tumour upon



the recurrent nerve, else why should we find this alteration in its degree, according to the position of the patient? for in certain postures a tumour in the chest would be likely to press upon, and more decidedly to irritate, the recurrent nerve. At the same time, it must be admitted that the congestion theory may be the true one after all; for it is quite conceivable that, in certain postures, the circulation may be more affected than in others, and a temporary increase of congestion of the vocal cords, and therefore of hoarseness, produced.

Three other sets of symptoms remain to be considered. One of these is the bronchitis; the second, the dilatation of the veins; and the third, the weakness of the left pulse. How can we account for the occurrence of bronchitis when a mediastinal tumour is present? As we have seen, the tumour was in all probability pressing upon the large bronchial tubes, and interfering with the entrance of air into the lungs. There being a deficient supply of air to the air vesicles, the blood is not aerated; and when the blood is not aerated, just as we see in cases of asphyxia, it stagnates. The lungs become engorged, and the natural consequence of this is the development of symptoms of bronchitis. Then the enlargement of the veins was in all probability due to the pressure of the tumour upon the vena cava superior, interfering with the free return of blood from the upper part of the body to the right side of the heart, so that it required to take a circuitous course in order to reach it. There was weakness of the left pulse, too; but it was not very marked. This may be accounted for in part by the circumstance that in general the left pulse is somewhat weaker than the right; but there is nothing to prevent a tumour in the anterior mediastinum from pressing upon the subclavian artery of the left side, or so altering its position as to interfere with the free passage of arterial blood into the left arm. Then there was the absence of the apex beat. That can be explained on the principle that the tumour not only compressed the parts within the thorax, but also displaced them, and that the heart was probably carried away from the chest wall. The pain which was felt may have had its origin in the tumour itself, but it is more likely to have been due to pressure of the tumour upon the nerves within the chest.

It is impossible to say with certainty what the nature of this mediastinal tumour may be; but I am inclined to the belief

that we had here to deal with a cancerous tumour, and for these two reasons—(1) That cancerous tumours are more frequently observed than any other form of tumours within the chest; and (2) that its growth has been very rapid, for it is not many months since the symptoms first made their appearance. It is true that a patient labouring under cancerous disease is generally cachectic; but it must be remembered that this feature usually becomes most marked when the disease is far advanced, and it may not have lasted sufficiently long in this case; and, moreover, the cachectic appearance may be there, if we could only see it, but may be hid by the turgescence of the face.

A short time ago I saw a somewhat similar case, in consultation with Dr. William Pearson.

CASE 135.—This patient, a female, æt. 49, began to complain of pain to the right of the middle of the sternum, which, about nine months prior to my visit, extended up to the right shoulder. This was followed by a hard irritative cough, which was soon accompanied by slight frothy, and occasionally tough, mucous expectoration. To these symptoms were added distension of the superficial veins of the right side of the neck and face and right arm, and œdema, which was aggravated by exertion. At the time of my seeing her, the cough and expectoration and pain of chest continued, and she had dyspnœa to such an extent that she could not lie down with comfort. The breathing over the whole chest was harsh, but air entered both lungs with equal freedom. There was distinct prominence, associated with dulness on percussion, of the upper part of the sternum; and at the right supra-scapular region the percussion was less clear than at the left. The voice was hoarse, but the pulses were equal on two sides, and the pupils were unaffected.

Further corroboration of the view taken with regard to the nature of these cases is afforded by the following case, reported by Dr. Clarke,<sup>1</sup> and in which a post-mortem examination was made:—

CASE 136.—A mason, æt. 30; had been pretty well, up to six weeks before his admission into hospital. At that time, after lifting a heavy stone, he noticed a swelling in his neck, and complained of dull, aching pain down the right arm, dyspnœa, dysphagia, and partial aphonia. The chest and arms, especially the right, were very œdematous, and the superficial veins were much enlarged; there was some flattening below the left clavicle; deficient movement and dulness of whole of left side, back, and front; and on right side, below clavicle to fifth rib. The

<sup>1</sup> *Lancet*, London, 1872, vol. ii. p. 10.

patient died of exhaustion a fortnight later. At the autopsy, "a large, solid mass of a carcinomatous nature" extended over the whole of the upper part of the thorax, closely connected with the left lung, and adherent to the right pleura; the left lung was contracted, and adherent to the growth. The mediastinal glands were much enlarged; several masses of cancer were present in the liver and pancreas.

Riegel<sup>1</sup> has collected thirty-six cases of mediastinal tumours, recorded by different authors. He finds carcinoma and sarcoma most frequent. The growth of the tumours was variable, very frequently sudden and rapid; most commonly they invaded neighbouring organs, seldom only displaced them. They were more frequent in males than females, in the proportion of 2·4 to 1. The majority occurred between the ages of 20 and 30. Special symptoms were—absence of pyrexia; more or less bulging of the sternum; asymmetry of the two sides of the thorax; displacement of the heart, etc.; cyanosis and œdema of the face and upper extremities from compressed vessels, and difference of pulse on the two sides; sometimes enlarged thyroid, with more or less exophthalmos; symptoms caused by pressure on the trachea or œsophagus; in the majority of cases enlargement of the neighbouring glands. To these were added pains of various degrees in the affected region; dyspnœa, increased to true orthopnœa; and a cough, at first dry, later with purulent and sometimes blood-streaked expectoration.

The foregoing cases—which it is unnecessary further to multiply—and the statistics just mentioned, point to the conclusion that the patient with whose case I commenced is suffering from a mediastinal tumour; indeed, there is only one other disease which it could be, and that is aneurysm. But an aneurysm which has approached the surface, as this tumour has, would yield pulsation, although that sign may be absent if it is small and deep-seated. On the other hand, you may have pulsation when there is no aneurysm; for a tumour lying upon the aorta, or one of the great vessels, may have the pulsation of that vessel communicated to it. If, however, it is the seat of expansion as well as pulsation, it may be concluded that there is an aneurysm. Again, if on applying the hand over the part, "purring tremor" is experienced, and which was absent in this

<sup>1</sup> "Zur Pathologie und Diagnose der Mediastinal Tumoren, *Virchow's Archiv*, Bd. xlix. S. 193. Extracted from the "Biennial Retrospect of Medicine and Surgery for 1869-1870," p. 134.

case, aneurysm is pretty certainly present ; but it is often absent in that complaint, and as a negative symptom is of little value in diagnosis. In this patient no murmur can be heard, as is generally the case in mediastinal tumour ; but it must not be forgotten that aneurysms are often met with in which no murmur is audible ; and, on the other hand, the tumour may be non-aneurysmal, and yet there may be a murmur, if it compresses and diminishes the calibre of a great vessel. Lastly, dilatation of the superficial veins and œdema were noted, symptoms which are usual in mediastinal tumour, but comparatively uncommon in aneurysm, to any extent at least ; because an aneurysm is more soft and yielding, and is generally more or less movable, so as not to exercise serious and constant pressure upon the veins within the chest. The difference in the pulses at the wrists, present in our case, is more frequently met with in aneurysm than in tumour, although it is often present in the latter ; and, on the whole, it must be admitted that the balance of evidence is decidedly against the aneurysmal view.

Finally, let us see if there is anything in the surroundings of this case which afford us information as to the nature of the tumour. On careful examination of the patient, we found a swelling over the right tibia, a node, which was painful, especially at night, as we so often find with cases of syphilis, and therefore there was a suspicion that the intrathoracic disease might be of syphilitic origin ; but there were no other signs of syphilis. There was no history of that disease having been contracted ; and, moreover, full doses of iodide of potassium, while it relieved the pain, had no further influence over the node, nor were the chest symptoms altered by it. Indeed, even while the iodide was being used, the swelling of the tibia became firmer and larger, which led to the suspicion that it was malignant.

Another point of interest in this case is, that there is a little swelling of a pink hue over the front of the sternum, smaller than a hen's egg, which sends out little processes or roots in all directions. This swelling is due to excessive development of the white fibrous tissue of the skin ; it is an illustration of that rare disease to which the name of keloid has been given, and is in my experience unique in so far as it seems to have been congenital, whereas such tumours almost invariably make their appearance in adult life. There are two forms of keloid—the true, and the false or spurious. The former appears spon-



taneously, the latter as the result of some lesion of the skin, such as that resulting from a burn, so that it would be quite appropriate to call the true idiopathic, and the spurious traumatic, keloid. Again, the true is generally of small size, while the area of the false is variable, depending upon the extent of the preceding lesion; and, finally, the true has a special tendency to occur upon the front of the chest, although not limited to that part, while the false may appear in any situation, because any part of the skin may suffer a solution of continuity. The patient then is affected with true keloid; but what has that to do with the question at issue? Simply this, that there seems to be some connection between the true keloid and cancerous affections; indeed, Alibert applied to it the term *cancroid*. Certain it is, at all events, that extirpation of the true keloid is about as certain to be followed by a return of the disease as in the case of true cancer.

More valuable support to the cancerous theory is to be found in the fact that the patient has hæmoptysis, a symptom which, though met with in connection with other kinds of tumour, is much more frequently associated with cancer; and, lastly, cancerous tumours are more frequently met with within the chest than any other kind, as the statistics of Riegel show.

I need not dwell upon the probable result in this case; for if the opinion expressed as to its nature be correct, the tumour will in all probability go on increasing, deteriorating the general health, invading and further interfering with the functions of neighbouring organs and tissues, and will lead at no very remote period to the death of the patient. The treatment must be of the simplest kind; absolute rest is indispensable; the diet must be simple and nourishing; the cough and irritation may be relieved by a dose of Savory and Moore's etherodine at night; and it may come to be a question by and by whether the local abstraction of blood may not be advisable if the dyspnoea increases, and if the pain, which is not at present an urgent symptom, becomes marked. It is often wonderful the amount of temporary relief which is given in cases of this kind by the local abstraction of blood; but I am sorry to say that, however successful we may be for a time in relieving distressing symptoms, a fatal issue is sooner or later to be expected.



DISEASES OF THE DIGESTIVE SYSTEM.



## I.

### TUBERCULAR PERITONITIS.

THERE are certain diseases which are too apt to be regarded by the profession as almost necessarily fatal, the inevitable consequence being that their treatment is conducted in a half-hearted way, and therefore with little prospect of success. Amongst them must be classed those associated with the development of tubercle. In a previous chapter the curability of acute phthisis has been dealt with, while this one treats of the curability of tubercular peritonitis. The cases which follow seem to show that this disease is by no means such a hopeless one as many are disposed to believe, although, of course, we often meet with cases which are so malignant from the first, or which have come under observation at so late a period, that nothing can save them.

A very convincing case, illustrative of the curability of tubercular peritonitis, is to be found in the late Sir Spencer Wells' work:<sup>1</sup>—

CASE 137.—A young lady, æt. 22, had an enlargement of the abdomen, which was diagnosed as “a thin, non-adherent, unilocular ovarian cyst.” Accordingly a small incision was made below the umbilicus, and the peritoneum opened. “A large quantity of opalescent fluid escaped, and then the whole of the peritoneum was seen to be studded with myriads of tubercles. Some coils of small intestines were floating, but the great mass was bound down with the colon and omentum, all nodulated by tubercle towards the back and upper part of the abdomen. The uterus and ovaries were felt to be of a normal size, but their peritoneal coat was very rough.” This patient made a good recovery, and subsequently married.

The following case is another good illustration of the undoubted cure of an attack of tubercle peritonitis, seeing that the diagnosis was confirmed by the post-mortem examination made ten years afterwards:—

<sup>1</sup> “Diseases of the Ovaries,” London, 1872, p. 135.

CASE 138.—The patient, a lad of 16, was admitted to the Western Infirmary on 4th September 1878.

The history then was, that towards the end of July of the same year his abdomen began to swell uniformly, but unaccompanied by much uneasiness.

On examination, the belly was found to be moderately enlarged, and firm to palpation, while here and there, upon deep pressure, distinct irregularities could be made out. Percussion gave the usual tympanitic note, save in the left iliac and lumbar regions, where an area of dull percussion extended 4 in. from above downwards and from before backwards. Slight tenderness, not amounting to actual pain, was elicited upon palpation, and fluctuation was absent. The heart and liver seemed to be normal, but at the apex of the left lung, in front and behind, the percussion note was distinctly dull, and, in the same area, the respiratory murmur was feebler as compared with that in the corresponding region upon the opposite side.

The urine contained no abnormal constituents, with the exception of a few crystals of oxalate of lime.

With regard to temperature, the thermometer registered on admission 101° F., and from that date the average temperature continued for about a month at 98°·6, occasionally 99°, and rarely 98°·4 in the morning, while in the evening it ranged from 100° to 102°·2. Towards the end of September it began to approach the normal in the evenings, registering, as a rule, 99°·2, 99°, or 98°·6, while, on the other hand, the morning readings showed a rise to 99° or 99°·6. From the middle of October till his dismissal on the 13th of December, the morning temperature never rose above 98°·6, while in the evening it still continued to rise to 99°, or 99°·4.

On dismissal, upon the 13th December, the following note was made with regard to his condition:—"Since admission the patient has steadily improved, although pallor is yet well marked. There is still some firmness to be felt over the abdomen, but the swelling is diminished, and neither pain nor tenderness is experienced in any part of the abdomen.

Five days after admission he weighed 6 st. 8 lb., and when he left, 9th December, his weight had increased to 7 st. 10 $\frac{3}{4}$  lb.

From that date he was entirely free from any abdominal complaint; and, except for an occasional "cold," he always enjoyed good health, till the beginning of September 1888, when he began to complain of weakness of the legs and pain in the back. He steadily became worse, till on 22nd September he was re-admitted to the Western Infirmary, suffering from paraplegia, pain in the back, retention of urine, and incontinence of fæces. The lower dorsal and upper lumbar spines were tender to percussion, and the temperature was 102°·8 F. on admission. The lungs and other viscera appeared to be normal, except the bowels, which as a rule evacuated fluid stools twice daily, but not of the pea-soup character.

He improved slightly for a time, but towards the end of December 1888 a swelling appeared to the right of the upper lumbar vertebræ. At first it was painless, and the skin over it was natural, but it gradually increased to the size of the fist, the skin became slightly reddened and painful, and fluctuation was apparent.

The abscess was opened, and drained with careful antiseptic precautions, but he died a week after the operation.

The following is the report of the post-mortem examination:—

“A somewhat spare body. In the lumbar region there is the opening of an abscess from which a sinus, having tubercular walls, passes up on the right side outside the arches of the vertebræ. In two places the tuberculosis exists in the intervertebral substance, but doubtfully in the bodies.

“*Chest.*—Ribs in a high degree calcified; heart normal; left lung somewhat firmly adherent, and adhesions œdematous; also in one or two places a fibrinous exudation, especially between the lobes. In the right pleural cavity there is a considerable quantity of turbid fluid, and the pleura is coated with soft fibrinous exudation, except at the base, where it is firmly adherent to the diaphragm.

“*Abdomen.*—The intestines are matted together by adhesions composed of a rather delicate connective tissue, and similar adhesions unite the liver and spleen to the diaphragm, and indeed almost obliterate the peritoneal cavity. In the midst of the adhesions, occasional gritty masses are present, but these are not frequent. The stomach is firmly adherent to the liver. The spleen is buried in adhesions, and very soft on section. The liver is normal. The kidneys are considerably enlarged, and the cortical substance shows a marked mottling.”

In my experience the prognosis of tubercular peritonitis is more favourable when it is associated with fluid effusion than when it is entirely solid. This is illustrated by Sir Spencer Wells' case, and also by the following:—

CASE 139.—Helen G., æt. 10, was admitted into bed 2 of Ward 5 on 6th September 1875, complaining of swelling of the abdomen of three months' duration. Her family history presents no peculiarity, except that a brother died when young of “decline of the bowels.” Her present illness began about three months prior to admission, with occasional pains in the epigastrium, to which by and by was added swelling of the abdomen; her appetite nevertheless continued fair, and her bowels regular. After the swelling had continued for about a month, a medical man was consulted, who ordered her removal to the country, where she remained about four weeks, her condition improving and the swelling diminishing under the use of “juniper drops.” A



month before her admission, however, the swelling reappeared, but her mother thought that, to some extent, it had been "kept under" by the use of cream of tartar. She has never had much cough, but her urine has frequently thrown down a reddish yellow precipitate, and has been lately rather deficient in quantity.

On examination, we found that there was only slight fever, the temperature being usually from  $99^{\circ}$  to  $100^{\circ}$ ; but there was decided perversion of the pulse-respiration ratio, the pulse being  $104^{\circ}$  (of fair strength) and the respiration 36 per minute. She was not emaciated; her tongue was slightly furred, her appetite fair, her bowels inclined to be loose, and she complained a great deal of pain and tenderness of the abdomen. There was distinct evidence of fluid in the peritoneal cavity, and that in considerable quantity, as, when she lay upon her back, the lateral dulness on percussion extended as far forwards as a line drawn from each nipple, while below it began at the junction of the middle with the lower third of the abdomen. The circumference at the umbilicus was 26 in.

Now, what was the cause of the ascites? Manifestly, not disease of the kidneys or heart, for both these organs were healthy; nor disease of the lungs, for although, as we shall see presently, these were not sound, the condition was not such as produces dropsy, and because dropsy dependent upon disease of any of these organs commences in the subcutaneous cellular tissue, and only secondarily involves the serous cavities. The accumulation of the fluid must therefore have been due to an abdominal cause, and then generally it arises in consequence of obstruction to the portal circulation. But in this case there was no evidence whatever of disease of the liver, or of other abdominal source of portal obstruction; and thus, by a process of exclusion, we arrived at the opinion that it probably resulted from inflammation of the peritoneum. Further, we were justified in suspecting that the inflammation was of a tubercular nature (although in the majority of cases this condition gives rise to adhesive inflammation, with matting together of the abdominal contents, and not to fluid effusion), and for these reasons—(1) The patient's brother died of "decline of the bowels"; (2) she was only ten years of age,—a time of life when tubercle of the peritoneum is common; (3) she had a slight dry cough; there was dulness on percussion at the left apex, and in the same situation there was "wavy" respiration with an occasional snoring r le,—that is to say, she had tubercular disease of the lung.

The treatment consisted at first of a careful regulation of the diet and of the bowels; to this was added, on 15th September, Savory and Moore's pancreatic emulsion, in doses of from  $\frac{1}{2}$  drm. to 2 drms. in milk, an hour after the two principal meals; and, on 21st September,  $\frac{1}{2}$  drm. of syrup of iodide of iron three times a day before food. On 19th October it was noted that her general state was tolerably satisfactory; but although the local symptoms had not become aggravated, it could not be said that there was any decided amendment, and the abdomen still measured 26 in. Accordingly, to the previous treatment was superadded cod-liver oil in doses of 1 drm., gradually increased to  $\frac{1}{2}$  oz., three times a day. Fifteen days thereafter (on 4th November) the abdomen measured 24 in., and on the 16th 23 in., by which time all pain had disappeared, and not a trace of fluid could be discovered in the peritoneal cavity, even when the patient rested upon her elbows and knees,—an attitude in which a very trifling quantity of fluid can be detected. Towards the end of the month she was dismissed well, although there was still slight dulness at the apex of the left lung, and she was warned to persevere steadily with the treatment which has just been indicated.

CASE 140.—W. L., æt. 3 years; was admitted into the Infirmary on the 6th of March 1873, in a state of extreme debility and emaciation; his abdomen being enormously distended. The family history was good, except that one boy out of a family of six had his foot amputated, for what appears to have been strumous disease of the ankle joint. Until three months prior to admission, the patient seems to have been strong, vigorous, and thriving. At this time, without known cause, he was suddenly seized with severe rigors, and became cold and livid; and this was followed by diarrhoea, which has since persisted. Six weeks afterwards, his belly began to swell, and about this time he frequently cried out, and was observed to roll his head about; but there was no clenching of the hands and no strabismus, and he never had convulsions.

At the time of admission he had a slight cough, his tongue was coated with a yellowish white fur, his appetite was indifferent, his bowels loose, his temperature  $100^{\circ}4$ , and his pulse 140. The abdomen was very much enlarged, and the skin tense and shining, while the superficial veins were very distinct. There was considerable tenderness on pressure; the percussion was tympanitic in the upper half of the abdomen in front, and dull below and at the sides, while fluctuation was readily detected.

On the 7th March he was ordered milk diet, soup thickened with isinglass and arrowroot, an ounce of port wine, and five drops of laudanum, by injection.

On the 8th of March paracentesis abdominis was performed, the

needle being introduced in the left flank. On this occasion only six ounces of fluid were removed; but upon the 10th March 42 oz. were drawn off, and within half an hour of the operation he was cheerful and comfortable, and evinced very decided relief. The fluid removed was thickish, pale green in colour, rich in albumin, of specific gravity 1023, and showed microscopically fibrin, inflammatory lymph, and a few blood corpuscles.

The day after the second operation, the little boy was quite comfortable; the abdomen was much reduced in size, the bowels were regular, the pulse 116, and the temperature  $100^{\circ}$  in the morning, and  $101^{\circ}$  in the evening. Cod-liver oil inunction over the belly, night and morning, and a teaspoonful thrice daily by the mouth, were ordered.

On the 14th March, owing to slight gastric derangement and diarrhœa, the internal administration of the oil was discontinued, and a laudanum injection administered. Six drops of the liquor cinchonæ, three times a day, was prescribed, and the port wine was increased to 2 oz. Temperature,  $98^{\circ}4$ .

On the 18th March it was found that the abdomen was again much distended with fluid, and the boy was restless; his face was livid, and his respiration hurried. The pulse was 136, and the temperature  $104^{\circ}6$ . The operation was therefore repeated, and  $41\frac{1}{2}$  oz. of the same fluid was drawn off, giving almost immediate relief.

On the 6th April, the report states that, with the exception of an attack of diarrhœa of two days' duration, during which the temperature rose to  $102^{\circ}3$ , he has been steadily improving since the last operation. There has been no tendency to re-accumulation of the fluid, he is evidently free from pain, he takes his food with relish, and is sitting up in bed looking pleased and cheerful.

On the 11th of April, it was stated that the abdomen was nearly of the normal size, no fluctuation could be detected, he was rapidly gaining flesh, and his stomach and bowels were performing their functions naturally. Shortly after this, as he continued well, he was allowed to return home.

CASE 141.—A. H., æt. 9, was admitted to the Western Infirmary on 7th March 1894, complaining of cough of three months', and pain in the abdomen of two weeks', duration.

His father and mother are alive and healthy. He has two brothers, of whom the younger is "very delicate." One male child was still-born. He has one sister, who is quite healthy. The patient himself has always been delicate. He had measles two years ago, and one year ago an attack of bronchitis, for which he was admitted to the Infirmary. He remained well after dismissal, until three months previous to re-admission, when he "caught cold." Since then he has been troubled with cough,

and during the last three weeks has been getting very thin. Two weeks before re-admission he began to complain of severe pain in the lower part of the abdomen, and during that time he was subject to diarrhœa. Distension of the abdomen was also present. For the last four or five days of this time he has suffered from an intermittent pain across the forehead, and been feverish at night.

*State on admission.*—Temperature,  $100^{\circ}\cdot8$ ; pulse, 140; respirations, 40. He looks frail, and is distinctly anæmic. The chest is spare, the eyelashes long and black. He lies in bed with the legs drawn up. At night there are profuse perspirations. In the chest numerous scattered bronchitic râles were found, but at the apices there was nothing abnormal. The heart was normal.

The abdomen was found to be uniformly distended. It was tender, and on palpation resistant. No enlargement of the glands or thickening could be made out, but he kept the abdominal muscles very tense during examination, and so hindered a certain conclusion. On percussion, the flanks were found to be much duller than other parts of the abdomen. That part which was quite clear extended from the level of the umbilicus upwards over the gastric area. Change of position did not cause complete disappearance of the dulness of the flanks, although it became decidedly less. Probably, therefore, there was some effusion of lymph on the parietal peritoneum. A slight wave of fluctuation could be got on placing the hand on one flank and tapping the opposite flank.

Diarrhœa, though previously marked, was not a prominent feature of the case after admission.

The temperature was hectic in character, running up to  $103^{\circ}$  about midnight, and falling considerably towards morning.

On the 13th of March he was noted to be "much brighter," and on the 25th the improvement continued. His temperature was often above  $100^{\circ}$ , and when it was so, iced cloths were applied to the abdomen (for half an hour) every two hours, and with the most satisfactory result, both as regards the removal of the tenderness and the lowering of the temperature. He also slept and ate better and was much more cheerful.

Thereafter he remained several months in hospital. The temperature, up to 17th March, frequently ran up to  $101^{\circ}$ , and not seldom to  $102^{\circ}$ , or over. From that date till 25th April the average of morning and evening temperatures was about  $99^{\circ}\cdot4$ , but on the latter day it rose in the evening to  $100^{\circ}\cdot6$ . Until 17th May it remained below  $100^{\circ}$ , but then rose in the evening to  $102^{\circ}\cdot2$ ; and on the 25th, after an interval of temperatures below  $100^{\circ}$ , to  $101^{\circ}\cdot6$ . The last temperature of  $100^{\circ}$  was noted on the evening of 5th June.

As a rule he had one motion per diem, and only once more than two, on 31st March, when there were three.

During March he was not weighed. The average weights thereafter were—

	Month.	st.	lb.	oz.
April	. . .	2	8	2½
May	. . .	2	7	13
June	. . .	2	7	10
July	. . .	2	8	13
August	. . .	2	10	12
September 1st	.	2	9	12

When last examined, the day before he was dismissed, it was found that a considerable dulness remained in the flanks, and the abdomen was rather full, but the tenderness was quite gone, and the temperature, as above mentioned, had been for some time about normal.

There was evidence of matting together of the coils of intestine. The pulse rate was 96. There was no cough. The respiration was quite quiet, and its rate normal. The general condition was also satisfactory. The treatment adopted was as follows :—

1894.

- March 9. Fomentations to abdomen; milk and lime-water; tinct. of opii, 26 minims, as enema, when required to check diarrhoea.
- „ 12. Antipyrin, 5 grs., when temperature over 100°.
- „ 14. Iced cloths to abdomen when temperature over 100°; atrop. sulph.,  $\frac{1}{250}$  gr. at night.
- April 29. Atrop. sulph.,  $\frac{1}{250}$  gr., as pill at bedtime.
- June 23. Pill stopped.
- July 2. Pill recommenced.
- „ 3. Quinæ sulph., 1 gr., t.i.d.
- „ 18. Ol. morrhue, 1 drm., t.i.d., p.e. To be much in open air.
- August 7. „ 2 drms., t.i.d.

He was dismissed well on 19th September.

Did time permit, other cases might be given, but those which I have quoted serve to show that tubercular peritonitis is not a hopeless condition, and that recovery may be expected in a fair proportion of cases.

The following cases of peritonitis are of interest, and may be added, although there is no certainty that they were tubercular in character :—



PUERPERAL PERITONITIS WITH PURULENT EFFUSION,  
TERMINATING IN RECOVERY.

CASE 142.<sup>1</sup>—Mrs. C., æt. 31 ; was admitted on the 17th April 1882, complaining of considerable pain in her abdomen, which was greatly enlarged. She had slight diarrhœa, and the motions were frequently accompanied by a discharge of blood. Her pulse was small and wiry, numbering 120 to 140 per minute. There was a difference of 3° or 4° between the morning and evening temperatures, the latter being 102° F. to 103° F. Weakness was a very marked symptom, but both at this time and throughout her whole illness her appetite was remarkably good. She had a cough, and, on examination of her lungs, signs of pleuritic effusion were found at both bases. Abundant mucous râles were also heard accompanying the distant breath sounds.

The following is a brief history of the case previous to admission :—On the 26th March she was delivered of a child. Everything was quite normal, and she made a very good recovery. On the seventh day after her confinement, she got up and attended to her household duties. The following day, severe constant pain came on in the abdomen, accompanied by diarrhœa, vomiting, and high temperature. This continued for a fortnight, when, on the 15th April, the diarrhœa was stopped by medicines. After this the pain became more severe, the abdomen began to swell, cough came on, and considerable dyspnœa was complained of.

Her family history was good, and, previous to this illness, she had been in very good health. There were, however, cicatrices on the sides of her neck, the result of strumous suppurations during childhood. She had been married five years, and had only one child. She had a miscarriage three years ago, at which time she lost a considerable quantity of blood.

After admission her condition remained almost unchanged until the 9th May, when the abdomen, which measured 40 in. in circumference at the level of the umbilicus, was tapped with Southey's trocar and cannula ; and, during the four days the cannula was in position, 236 oz. of thin semipurulent fluid drained away, after which the abdomen measured 33 in. She improved very much, and the temperature on the 17th May was normal. Fluctuation was, however, still present, and there was considerable tenderness over the left lobe of the liver, which felt firm and hard. On the 25th May the abdomen (measuring 35½ in.) was again tapped, and 156 oz. of purulent fluid removed ; also on the 8th June, when 176 oz. were withdrawn. The benefit derived from tapping was very temporary, the thickness of the fluid increasing with each successive tapping, on the last occasion being pure pus. The condition of the lungs remained almost unchanged, and night sweats

<sup>1</sup> Reported by J. W. Grange, M.B.

were very severe. For this she got as much as  $\frac{1}{50}$  gr. of sulphate of atropia every night without any benefit; but atropia and morphia combined almost entirely stopped it.

On the 26th July the abdomen measured 34 in., and a hard tumour was felt to the left of the middle line, in which distinct fluctuation was present. An incision was made into this by Dr. Buchanan, and about 100 oz. of thick pus evacuated. A drainage tube was inserted, and antiseptic dressings applied. These were used in order to obviate the necessity of frequent dressing, as there was a strong suspicion of the pus being putrid when the incision was made. There was little or no discharge after the first three or four days, and the recovery of the patient was uninterrupted. The drainage tube was gradually shortened, and finally taken out on the 15th October, there being no discharge. At that date the condition of her lungs was very satisfactory, the dulness at the bases having almost disappeared, cough and expectoration being slight. Her temperature was normal, and she was able to go out for a walk daily. Her urine never contained any albumin.

She was dismissed on the 23rd October, with the incision in the abdomen perfectly healed.

#### PERITONITIS COMPLICATED WITH ABSCESS BELOW THE EAR.<sup>1</sup>

CASE 143.—A gardener, æt. 23, was received into the Infirmary on 17th October 1883. He was so ill that it was impossible to get a full history of his complaint; but it seems that it set in during the night, three days previously, when he was awakened by a severe pain in the right iliac region, which soon became diffused over the whole abdomen, and was accompanied by a good deal of distension. On admission he was in a state of extreme debility; pulse 120, weak and thready; temperature  $102^{\circ}4$  F.; his abdomen, which was very decidedly distended, was so exquisitely sensitive that he could not bear to have it touched, and he lay upon his back with his legs drawn up, his countenance having a worn and suffering appearance. Vomiting was a very constant and annoying symptom from the first, scarcely anything lying on his stomach, and his bowels had not been moved for several days.

He was fed upon feed milk; 10 grs. of Dover's powder was prescribed, to be repeated as required, and fomentations were applied to the abdomen.

On the 19th, poultices were substituted, the abdomen being smeared with a mixture of belladonna and glycerine, and as the sickness was very troublesome the Dover's powder was replaced by  $\frac{1}{2}$  gr. morphia suppositories.

Next day, 20th October, as the sickness still persisted, 1 gr. of solid

<sup>1</sup> Reported by W. L. Strain, M.B.

opium was given by the mouth every four hours, instead of the suppositories; and as he complained of the weight of the poultices, fomentations sprinkled with laudanum were substituted.

*23rd October.*—No improvement is manifest, the sickness and vomiting being even worse, and the pulse 120, weak and thready; but the temperature was normal in the morning, and 99°·6 in the evening. The opium by the mouth was stopped, and subcutaneous injections of morphia commenced, beginning with  $\frac{1}{4}$  gr. night and morning, the dose to be gradually increased until the pain was entirely subdued. His diet still consisted of iced milk, with ice to suck, and a teaspoonful of brandy was ordered every hour.

*24th October.*—Although the pain was much relieved, the irritability of his stomach continued; therefore the milk was stopped, and he was fed by enemata of Carnrick's beef peptonoids three times a day, when the vomiting immediately disappeared.

*28th October.*—The irritability of his stomach has not reappeared, and the abdominal pain is comparatively slight; but since the commencement of the enemata there has been a tendency to diarrhœa, with some tenesmus. Morphia suppositories were therefore administered, and a little milk by the mouth.

On *8th November*, the diarrhœa being still troublesome, and sickness keeping away, the nutritive enemata were stopped, and milk and milk foods cautiously given by the mouth; also, in addition to the morphia hypodermically, lead and opium pills were given at intervals.

He complained to-day for the first time of a painful swelling below the left ear. This swelling gradually increased in size, until it reached that of an orange; it became very painful; the skin over it was tense and shining, and he was unable to open his mouth. The temperature since the 23rd of October had rarely much exceeded the normal, and there was no notable rise owing to the swelling, the highest being a fraction over 100° F. This swelling proved to be a large abscess, which was opened antiseptically on 14th November.

From this time onwards his recovery was almost uninterrupted. His diet was cautiously improved, and his bowels carefully regulated. The morphia was discontinued about the first week in December, and for some time previous to this he had been having only one injection of  $\frac{1}{6}$  gr. to  $\frac{1}{4}$  gr. daily. On 16th December powders of lactopeptine and bismuth were given after each meal.

*4th January 1884.*—To-day he was dismissed, feeling, as he says himself, "better than he ever did in his life," and complaining only of some numbness of the left ear and left side of the face.

Considering the acuteness of the attack, the severity of the symptoms, the persistent vomiting, and the formation of a large

abscess, the result of this case must be considered highly satisfactory. The greatest difficulty in dealing with it was due to the irritability of the stomach, for whenever we fed the patient exclusively by enemata, while the sickness was arrested, diarrhœa commenced, and *vice versâ*; and it was only by the most careful alternation of the two methods of feeding that success was at last attained.

But what particularly interested me in this case was the occurrence of abscess below the ear, as this was the second case of the kind with regard to which I had been consulted in 1883. This was the case of a young lady, 13 years of age, whom I saw repeatedly in the month of March, in consultation with Dr. M'Jamet of Lennoxton. Hers was a most uncontrollable attack of peritonitis, on the twentieth day of which pain began to be complained of below the right ear, with swelling, which rapidly increased, and was accompanied by an erysipelatoid blush on the right side of the nose, and which terminated fatally.

The only way in which I can account for the formation of these abscesses is by supposing that they were of a septic nature; but it is somewhat curious that in both cases they should have occupied the same locality.

## II.

### RECURRENT GENERALISED DROPSY, WITH LIVER DISEASE.

CASE 144.—On the 2nd May 1884, a message-boy, Thomas E., æt. 18, was admitted into Ward 2 of the Western Infirmary, on account of a swelling of the whole body, of ten days' duration.

His family history was doubtful, but, as far as could be made out, not satisfactory, his father, mother, and some of his brothers and sisters being dead.

The illness for which he was admitted was one of a series of similar attacks extending over a period of fully seven years, the first being attributed by him to getting his feet wet. He had six or seven of these in all, generally at intervals of about a year, and each was characterised by almost identical symptoms, namely, very pronounced swelling of the whole body, scanty urination, pains in the right loin and occipital region, and some cough and expectoration, the duration of the attacks varying from six weeks to two months.

When he entered the Infirmary, his illness was of ten days' duration, and set in after he had "taken a cold." We found very marked dropsy of the whole of the subcutaneous cellular tissue, including that of the face, as well as a considerable amount of fluid in the peritoneum, and in both pleural cavities.

He was pallid, and, had it not been for a suspicion of lividity of the lips, presented the typical appearance of a patient labouring under tubular nephritis. We were surprised, therefore, to find that there was no accentuation of the second aortic sound (although the first sound was distinctly and permanently reduplicated); that the pulse was soft and natural; and that the urine, though scanty and high-coloured, and of high specific gravity (1028), contained neither albumin nor casts, and urea was normal in amount.

There was nothing in the state of the lungs to account for the widespread dropsy, though slight bronchitic râles were present. The liver, however, was very decidedly enlarged, the enlargement being pretty uniform, and measuring about 5 in. in the nipple line.



His tongue was somewhat furred, and he was very thirsty, but his appetite was good and his bowels regular.

The blood was examined microscopically, but no abnormality was found, except that the red corpuscles were slightly deficient, as might have been expected under the circumstances, numbering 4,640,000 instead of 5,000,000 in a c.mm.

It is unnecessary to dwell upon the treatment, except to say that when we succeeded in increasing the flow of urine there was a proportionate diminution in the dropsy. This was especially the case during the month of May, when he was fed exclusively upon skimmed milk, and freely purged with compound powder of jalap, the urine being then increased from 30 to over 100 oz. per day.

On the 4th of November, without apparent cause, he became feverish, complained of pains in the back of his head and neck, in his extremities, and in the abdomen, which was excessively tender, and soon became tympanitic; symptoms which were accompanied by vomiting and diarrhœa.

This attack of peritonitis carried him off on the 7th of November, three days from the commencement of the symptoms.

Dr. Joseph Coats said that, on making the post-mortem in this case, the organ that bore evidence of disease of some duration was the liver, but this organ did not present to him the appearances which he was accustomed to find in disease of the liver. At first sight it looked as if it was a case of cirrhosis of the liver, the surface being markedly irregular, but there were distinct divergences from the ordinary appearances of cirrhosis. The organ was larger than normal, weighing 4 lb. The general colour was paler, and the consistence less firm than in ordinary cirrhosis. On cutting into the organ, it appeared that there was much less new-formed connective tissue than the condition of the surface suggested, and this was confirmed by the microscope, which showed much more considerable intersection of connective tissue bands at the surface than more deeply. It was also seen under the microscope that the hepatic cells generally were in a state of cloudy swelling rather than of the atrophy and degeneration found in cirrhosis. On these grounds, Dr. Coats was inclined to regard the case as possibly one of subacute parenchymatous hepatitis, followed by shrinking, and comparable with the subacute parenchymatous inflammation of the kidneys. He suggested the speculation that this, which is a rare condition of the liver, may have given rise to the œdema and dropsy. The œdema of acute Bright's disease is immediately due to the condition of the blood, brought about doubtless by the lesion in the kidneys, and possibly a somewhat similar condition of the blood may be brought about by a diseased condition of the liver.

The other noteworthy condition in the case was acute peritonitis.

No cause of this was found except the condition of the liver. Considering the close relationship of the liver to the peritoneum, the latter forming a thin capsule applied immediately to the surface of the organ, it was not unlikely that the inflammation had spread from the liver to the peritoneum. The liver is very much more closely related to the peritoneum than the kidney, which has first its proper capsule, then its fatty capsule, and then the subperitoneal tissue, separating it from the peritoneum.

### III.

#### ON ULCERATION OF THE STOMACH, WITH SPECIAL REFERENCE TO THE STATISTICS OF THIRTY-FIVE CONSECUTIVE CASES.

THE present paper deals with the results of an analysis of thirty-five consecutive cases of ulceration of the stomach.<sup>1</sup>

The first point to be noted is the frequency of the affection as met with in hospital practice. I find that 2538 medical cases yielded thirty-five illustrations of gastric ulcer, or nearly one in seventy-three, that is, about  $1\frac{1}{3}$  per cent.

*The sex of the patient.*—It is well known that the disease is much more frequent in females than in males, but there is some difference of opinion as to the proportionate excess of the former. Ziemssen tells us that the journals of the Pathologico-Anatomical Institution in Erlangen show that of fifty-three cases in which ulcers or cicatrices were discovered on post-mortem examination, thirty-five were in females and fifteen in males, while Brinton gives the proportion as two to one. This estimate, however, like Ziemssen's, is based on fatal cases, which may partly account for the widely different result brought out by my statistics. These show that of thirty-five cases, thirty-two occurred in females and only three in males. And this disproportion is all the more striking when I mention the fact that the former occurred among 927 female medical cases, the latter among 1611 males; that is to say, that in males gastric ulcer was met with once in 537, and, in females, once in twenty-nine medical cases.

*The age of the patients.*—Let us hear what Brinton says: "The liability of an individual to become the subject of gastric ulcer gradually rises from what is nearly a zero at the age of 10 to a high rate, which it maintains through the period of middle life, at the end of which period it again ascends, to reach its

<sup>1</sup> These statistics were kindly collected from the Ward Journals by my resident assistant, Mr. Robert Anderson, M.B., C.M.

maximum at the extreme age of 90. We may therefore conclude that ulcer of the stomach is especially, though not exclusively, a disease of middle and advancing life.”<sup>1</sup> This opinion is not at all in accordance with my own general experience, nor with the present statistics, which, in the main, support the view of Ziemssen, that ulceration of the stomach is specially a disease of adolescence and of middle age. The following table gives the ages of the patients at the date of their admission into hospital:—

	No.	Years.
Males . . . . .	1	27
„ . . . . .	1	32
„ . . . . .	1	45
Females . . . . .	1	15
„ . . . . .	3	17
„ . . . . .	4	18
„ . . . . .	1	20
„ . . . . .	3	21
„ . . . . .	1	24
„ . . . . .	1	25
„ . . . . .	2	26
„ . . . . .	1	27
„ . . . . .	4	28
„ . . . . .	1	30
„ . . . . .	1	31
„ . . . . .	1	32
„ . . . . .	2	35
„ . . . . .	1	36
„ . . . . .	1	37
„ . . . . .	1	39
„ . . . . .	2	45
„ . . . . .	1	60
	35	

From the above it will be seen that none of the males were above 45, while of the females, sixteen, or one-half, were between 15 and 26 years, fifteen between 27 and 45, and one at 60. These figures confirm the impression, which I have long had, that gastric ulcer is, *par excellence*, a disease of adolescence and of middle life, and that the earlier in life the disease appears, the more likely is the patient to be a female.

<sup>1</sup> William Brinton, “Lectures on the Diseases of the Stomach,” London, 1864.

The duration of the symptoms at the time of admission into hospital is shown in the following table:—

Males, 1 case was of 2½ months' duration.  
 „ 1 „ „ 4 „ „  
 „ 1 „ „ 2½ years' „  
 In the females the duration was stated in all but two cases.

In 2 it was of 2 weeks' duration.

„ 1	„ 3	„ „
„ 4	„ 1	month's „
„ 1	„ 1½	„ „
„ 3	„ 2	months' „
„ 1	„ 2½	„ „
„ 3	„ 3	„ „
„ 3	„ 4	„ „
„ 4	„ 5	„ „
„ 1	„ 7½	„ „
„ 1	„ 10	„ „
„ 2	„ 1	year's „
„ 2	„ 2	years' „
„ 2	„ 3	„ „

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30

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These statistics show that in twenty-two of the thirty female cases the duration of the disease was not more than five months, and bear out my previous impression that ulceration of the stomach is a more chronic affection in males than in females.

The following table gives the proportion of previous attacks:—

*Males.*—One was attacked for the first time; one had four previous attacks during two years; one had repeated attacks during five years.

*Females.*—Of twenty-six cases in which this point was specially mentioned, fifteen were attacked for the first time, and eleven had had previous attacks. Of the latter, six had one previous attack, the interval varying from one to nine years; four had two previous attacks at intervals of from five weeks to two years; while one had had hæmatemesis repeatedly during the previous twelve years. So that these statistics bear out the character of this as a relapsing disease.

We now pass on to the statistics bearing upon symptomatology, which we shall consider upon the five following heads:—



(1) Appetite ; (2) pain ; (3) vomiting ; (4) hæmatemesis ; (5) state of bowels.

1. *Appetite*.—This was specially mentioned in eighteen cases : in eight it was good, in two indifferent, and in eight it was said to be bad ; but this last statement must be taken with a reservation, because patients often say that they have no appetite, while they mean that they are afraid to eat, on account of the pain which follows the taking of food.

2. *Pain*.—(a) *The character of the pain*.—In twenty-one cases this was specially referred to. In six cases it was described as burning, in the same number as gnawing ; in two each, as shooting, cutting, dragging, and dull ; while in one it was said to be “sharp.” This bears out the general experience that burning or gnawing pain is most characteristic of ulceration. (b) *The time of onset of the pain*.—This was specially noted in twenty-one cases. In ten it came on immediately after food was taken, in three soon after food, in three within a quarter of an hour, in three in half an hour, in one in from half an hour to an hour, and in one an hour elapsed before its onset, thus bearing out the general experience that pain usually comes on soon after food is taken. The pain usually continued for two or three hours, or until the patient vomited, which generally occurred within half an hour of the onset of the pain. (c) *Tenderness*.—Of twenty-six cases in which this symptom was alluded to, in four it was absent, and in twenty-two present. In most of these it was localised, and the tender part was indicated by placing the point of the forefinger on the epigastrium, a little below the ensiform cartilage ; in one case, however, it was widely diffused ; in two cases only was tenderness discovered over or near the lower dorsal spines (Cruveilhier’s symptom).

3. *Vomiting*.—This feature was specially alluded to in thirty-two cases : in two there was none, in four it was occasional, in four it always occurred after food, and in twenty-two it was frequent, so that vomiting is one of the most constant symptoms of ulceration.

4. *Hæmatemesis*.—This symptom was referred to in thirty cases : in six it was absent, in fourteen it was scanty (“coffee-ground” vomiting), in four it was moderate in amount, while in six it occurred to the extent of a breakfast-cupful to a pint or more. My own general experience led me to anticipate that these statistics would have shown a greater proportion of cases with large hæmorrhages.

5. *State of the bowels.*—This was mentioned in twenty-five cases: in one the bowels were regular, in one irregular, and in twenty-three costive.

In fifteen cases melæna was noted: in one case it occurred only once, in most cases it was observed repeatedly, and in one it was almost continuously present for three months; in fourteen cases there was hæmatemesis, without any mention of melæna, and in three melæna was present without hæmatemesis, thus showing the importance of a careful and continuous inspection of the motions in every suspected case of ulceration.

*Complications.*—In fifteen cases the ulceration of the stomach was primary and uncomplicated, while in twenty there were complications. One patient was suffering from abdominal aneurysm; one was hemiplegic, two had bronchitis, and one of these had pleurisy in addition; two were scrofulous, seven were anæmic, and seven were chlorotic. I believe that several of those described in the reports as anæmic were really chlorotic, but, at any rate, the statistics show that, in women, chlorosis is a very common accompaniment of ulceration. This fact must be carefully kept in view, else the pain of the ulceration may be mistaken for neuralgia of the stomach, which is so frequently met with in chlorosis, all the more as these are the very cases which are most apt to terminate fatally by perforation.

*Results.*—Of the thirty-five cases, two only remained for a week or two in hospital, and one insisted on leaving on the twenty-fifth day, being "much improved." One patient was "improved" when dismissed, seven were "much improved," and twenty-three were cured. Only one patient, a male, died, as the result of hæmorrhage from the stomach and bowels, and on post-mortem examination an ulcer was found at the pylorus, which had perforated a large vessel. These results correspond pretty closely with the result of Brinton's observations, which show one death in twenty to thirty cases, males succumbing to the disease nearly four times as often as females.

*Treatment.*—In conclusion, it is only necessary to indicate briefly the lines which were followed in connection with the cases comprised in the foregoing tables:—(1) The patients were always strictly confined to bed,—a point which, I have reason to believe, is not always insisted upon, as not only does the ulceration heal more readily, but the danger of profuse hæmorrhage and perforation is lessened. (2) The dieting was generally

the main point in the treatment. Hard, hot, stimulating, and irritating food was rigidly excluded; soft and fluid food, in small quantities, frequently repeated, being the rule; and, in the majority of cases, unless there was some contra-indication, milk, in combination with a little potash or lime water, was prescribed. In some instances peptonised meat preparations were given, especially Carnrick's beef peptonoids, to the extent of a teaspoonful every four hours. The patient was directed to suck the powder, so as to mix it thoroughly with the saliva before swallowing it. In some instances a slight modification of Debove's meals was administered. This consists of 25 grms. of Carnrick's beef peptonoids, 1 grm. of burnt magnesia, 2 of prepared chalk, and 1 of saccharated lime. The gastric juice is thus neutralised, and no peptones are formed in the stomach. It was found, however, that three of these meals per day sometimes produced diarrhœa, so that latterly three half meals were prescribed. As to the quantity of soft or fluid food given at a time, 2 oz. was the usual allowance at first, but the quantity was diminished if pain or vomiting resulted, and, of course, the less food that was taken the oftener was it repeated. We always adhered strictly to the rule of gradually reducing the quantity administered at one time, until it produced neither pain nor vomiting; and if even a teaspoonful of milk disagreed, all food by the mouth was suspended for a time, and the patient was fed exclusively by the rectum, although he was allowed to suck a small piece of ice occasionally. The rectal feeding usually consisted of the introduction every four hours of a zyminised milk or meat suppository, and on the alternate four hours, an enema, consisting of 3 drms. of Carnrick's beef peptonoids mixed with 2 or 3 oz. of warm water, was given.

A cure often resulted from dieting and rest alone, but the bowels were regulated when necessary by enemata, or the injection of a drachm of glycerine into the rectum. In a good many cases Carlsbad salts (the artificial salts by preference when constipation was present), as recommended by Ziemssen, sometimes yielded excellent results. These are given on the principle that the most essential obstacle to the formation of granulations in the floor of the ulcer is the corrosive influence of the gastric juice. The salts neutralise the acids and check fermentation; they likewise discharge the fermenting liquids into the bowel, and act as an aperient. The dose is from 1 to 4 drms., dissolved

in a pint of boiling water. This is allowed to cool, and, when tepid, is slowly drunk to the extent of a quarter of a pint every ten minutes, until it is all swallowed, and is given in the morning.

During convalescence the diet was very slowly improved, and sometimes small doses of arsenic seemed to consolidate the cure.

In some cases, when pain was a prominent feature, and especially when it persisted when the stomach was empty, opiates in small doses, or a combination of hydrocyanic acid and bismuth, were administered. When hæmorrhage occurred to any extent, rectal feeding was resorted to, although the patient was allowed to suck ice; ice was applied in an ice-bag to the epigastrium, and morphine was given by subcutaneous injection, occasionally combined with ergotine. Finally, complications were dealt with on general principles, according to their nature, —chlorosis, the most frequent one, being treated with Bland's pills, or some other preparation of iron.

## IV.

### CASE OF CANCER OF THE PYLORUS, IN WHICH PYLORECTOMY WAS PERFORMED.

THE following case<sup>1</sup> is worthy of being recorded in connection with the question of operative interference, as it is desirable that unsuccessful, as well as successful cases should be published.

CASE 145.—On 9th January 1888, on the recommendation of Dr. Samuel Sloan, Mrs. S., æt. 48, was admitted into the Western Infirmary, complaining of symptoms referable to the stomach, of four months' duration. Her father died, æt. 40, of "chest affection," her mother of "paralysis," at 70; two brothers and two sisters died in infancy, and two sisters, at the ages of 30 and 40, of bronchitis and enlargement of the liver respectively. Her remaining two sisters are alive and well. She herself has had six children, three of whom are dead, one being stillborn, and the other two having died of scarlet fever. Of the remaining three, two are well, and the third was under my care suffering from chorea. She has always, hitherto, enjoyed good health, and menstruated regularly, but now she seems to be approaching the menopause. She has been a total abstainer all her life.

About four months ago, without obvious cause, she began to complain of flatulence and of "waterbrash," to which symptoms pain in the epigastric region and vomiting were added two months thereafter, and her friends noticed that she was losing colour and getting very thin. The vomiting always occurred two or three minutes after food, and consisted of the ingesta, little altered, and never contained any blood, nor presented the "coffee-grounds" appearance. The pain occurred at first only after taking food, but latterly it has been more continuous, and has often been very severe, although she cannot well describe its character. Since her illness commenced her appetite has been very fitful, and has never been very good, although anorexia is not a prominent feature; but for the last two months her bowels have been very costive, and she has never had a natural motion.

On examination, she was found to be very pallid, very weak, and

<sup>1</sup> Reported by William MacLennan, M.B., resident physician.



much emaciated, but she had no fever, nor was there any evidence of disease in any organ, with the exception of the stomach.

On placing her on her back and exposing the abdomen, inspection at once revealed a very considerable distension in the epigastric and left hypochondriac regions, having quite the shape of a distended stomach. The great curvature of the stomach was very distinctly indicated, extending at its lowest point as far as the umbilicus, and, on passing the hand along its course to the right, it was found to terminate in a hard and nodulated tumour about the size of a hen's egg. This tumour, which was only slightly tender on firm pressure, was freely movable in all directions, and fell very much to the left on lying on that side. There was dulness on percussion over the tumour, but over the rest of the distended stomach the note was tympanitic, and, even after fasting for sixteen hours, succussion was easily made out.

On 10th January treatment was commenced. She was allowed nothing by the mouth except a small piece of ice when she was thirsty, and a teaspoonful of Carnrick's beef peptonoids thrice daily; but a milk suppository was inserted into the rectum every two hours, and at the alternate hours she had an enema of Carnrick's peptonoids (3 drms. in 3 oz. of warm water). Her bowels were regulated alternately with a simple aperient pill and a warm-water enema.

On examination, on 23rd January, it was found that under this treatment the symptoms of dilatation of the stomach had entirely disappeared, and the tumour was now felt immediately to the right of the left edge of the ribs, and extending nearly to the middle line. On sitting up, however, it descended about a couple of inches. Under the treatment just mentioned she felt very much more comfortable in every respect, and did not seem to be any weaker than at the time of admission.

The symptoms presented in this case led to the conclusion that she was suffering from a cancerous obstruction at the pyloric orifice of the stomach, while the small size of the tumour and its remarkable mobility, —which pointed to its being non-adherent,—along with the absence of any evidence of implication of other organs, led me to think that it might be a suitable case for resection of the pylorus. Accordingly, after consultation with my colleagues, it was decided to place the whole matter before the patient and her friends, without concealing in any way the great danger of operative interference, and as they were unanimous in their desire to have it done, she was transferred to the service of my colleague, Professor George Buchanan.

DESCRIPTION OF THE OPERATION, WITH REMARKS THEREON BY PROFESSOR GEORGE BUCHANAN.—“The operation was done after the manner of Billroth, as detailed in Wölfler's monograph and in Butlin's

'Operative Surgery of Malignant Disease,' with one or two slight modifications.

"I did not adopt the recommendation that the stomach should be washed out with tepid water for a few days previously to, and also two hours before, the operation. I am confident that if the stomach could be by any treatment put into the state of Mrs. S.'s, such manipulation, a most harassing thing for the patient, would not be required. In her case the stomach was practically empty for days, and on the morning of the operation was so, as was proved at the operation. Such strength as remained to her was not, therefore, taxed in the morning by any such disagreeable process.

"She was placed on the table at 11.30 A.M., and was put back to bed at 2.30 P.M. From the commencement of the giving the anæsthetic till the bandaging up of the wound occupied two hours and a half.

"There were present, besides others, Sir G. Macleod, Dr. Patterson, Dr. Cameron, and Mr. Maylard, who had himself done an operation of the kind two years ago, and who afforded the most valuable assistance in the most trying part of the proceeding, namely, holding up and coapting and assisting in passing the needles through the cut orifices of the stomach and duodenum. Ether was administered by Dr. J. L. Steven with most excellent effect.

"I made a vertical incision from the umbilicus to the ensiform cartilage, and without any hæmorrhage cut through the linea alba into the peritoneum. I put my hand into the abdomen, and felt, nearly opposite the incision, a little to the right side, the end of the stomach, with a smooth tumour the size of a large hen's egg surrounding the proximal end of the pylorus. Its right limit was sharply defined at the pylorus, and an almost as clearly defined extremity to the left marked the extent of the stomach invaded. It was freely movable, and there were no adhesions, so that without trouble it could be lifted up to the abdominal wound, and the thin diaphanous webs of the lesser and greater omentum examined. The process of separating the lesser omentum from the upper, and the greater omentum from the lower curvature of the stomach, is very tedious, as every half inch has to be secured with a double ligature, and snipped between. When this was accomplished, Mr. Maylard used the forefinger and thumb of both hands as a clamp on the proximal part, a flat sponge was placed underneath the stomach and duodenum, now drawn up to the wound, and the stomach was cut through. Scissors were used, and the section proved most satisfactory. Not a particle of fluid flowed out, and, so far as one could judge, the gastric wall, where divided, seemed beyond the tumour.

"It is unnecessary to detail all the manipulations with needles and the different modes of introducing them which are necessary, according as one deals with the sewing from within or from outside the viscera. The

really critical and difficult part of the operation, viewing it as a piece of skilful manipulation, is where the upper point of the cut duodenum is joined to the lower point of the upper curvature of the stomach, where it has been stitched to close in the upper two-thirds of the gap left by the piece cut off with the tumour.

“To do this, the assistant must have the stomach end between one forefinger and thumb, and the duodenum end between the other forefinger and thumb, and hold the points in absolute contact; but, besides, must elevate and depress them synchronously with the movements of the surgeon’s curved needle, so that the action, to be completed satisfactorily, is composed of the harmonious motion of four hands. So much was I impressed with this, that I can easily conceive that Billroth and his assistants, who have together done the operation many times, ought to accomplish it far more rapidly than the most skilled operator doing it for the first time; and as the shortening of the time occupied is one of the most necessary desiderata, it is not improbable that increased experience and modification in manipulation may have this effect, and so lessen the primary mortality of the operation. In all, over forty stitches were introduced, besides those used to close the abdominal wound.

“When the stomach and duodenum were joined, and just before the abdomen was closed, the parts seemed to fit each other so exactly that it was difficult to realise that 4 or 5 in. had been cut away. Also, it was satisfactory to notice that neither blood-cut nor any of the contents of the stomach or duodenum had gained admission to the abdomen, though a small vessel in the cut edge of the duodenum had to be ligatured with a fine silk thread.

“During the first two hours, the patient, who was completely under the effects of ether, was fairly well, but about this time began to show signs of exhaustion, getting very pale, with feeble pulse. Stimulants were carefully administered by subcutaneous injections of ether, enemata of brandy, and small quantities of brandy rubbed inside of the cheeks. But by the time the operation was completed she was in a state bordering on collapse, almost pulseless, cold and white.

“She was placed in bed, warmth was applied to the surface, and small quantities of brandy given.

“I saw her again at 6 P.M., and by this time the heat was restored and the pulse was fairly good. There was no vomiting, and she declared she felt neither pain nor sickness, but very weak. This rallying went on till midnight, when signs of depression again came on, and she gradually sank till 8 A.M., when she died.”

*Post-mortem examination.*—On removing the stitches from the abdominal wound, the coapted surfaces of the peritoneum were found closely applied, seemingly even partly glued together. The abdominal

cavity was freely opened in such a way as to obviate the slightest displacement of its contents. They were found precisely as they had been placed at the operation, and not a particle of blood or other fluid had escaped from the line of union. The cut end of the duodenum was lying on the surface of the pancreas, and seemed already to be partly adhering to its peritoneal covering. The stomach and duodenum were carefully removed and laid on a slab, and the stitches kept the parts so well in position that they could be moved about without disturbing the union. The weakest point of union was at the posterior wall of the duodenum, where the stitches were closely placed by interrupted suture, and here, with a little pressure, the point of a probe could be made to pass through the line of union. Here, however, the line of suture while *in situ* was resting on the pancreas, and if the patient had lived, adhesion between the peritoneal surface of the bowel and that of the pancreas would have occurred,—in fact, had already begun. So far as the anatomical manipulation was concerned, the examination was evidence that the result was just what was desired. The stomach contained about 2 oz. of brownish fluid. Examination of the seat of the incision showed that the diseased structure had been completely removed. The structure of the tumour removed was cancer of the colloid variety. A small gland in the lesser omentum, seen at the post-mortem, was removed, and on microscopic examination proved to be infiltrated with a material somewhat resembling the primary tumour.

*Remarks.*—The conclusions I have drawn from the experience of this case, and from a study of the subject,<sup>1</sup> are—(1) That if pylorotomy is to be undertaken with any prospect of success, the patient must be urged to submit to it long before he is reduced to a state of approaching inanition by starvation. (2) The success or fatality of the operation itself will be greatly affected by the length of time the abdominal cavity is kept open. (3) The freedom of the tumour from complications, as adhesions and secondary infiltrations, is necessary, but sometimes can only be ascertained during the operation. Meanwhile, as the number of operations performed is still very limited, the question, “Is pylorotomy justifiable or not?” may be disposed of by quoting the two following opinions, one by Mr. Butlin, who has made the question the subject of very extensive study from the history of all the recorded cases; the other from Professor Billroth, the

<sup>1</sup> Authorities consulted: Wölfler's monograph on the “Method of Excising the Pylorus”; Hacker, “Die Magenoperationen an Professor Billroth's Klinik,” 1880 and 1885; Salzer, “Statistics of Operations in Billroth's Klinik in 1887”; Winslow, *Am. Journ. Med. Sc.*, Phila., 1885; Butlin, “Operative Surgery of Malignant Disease,” 1887.



contriver of the operation and the most extensive and successful operator.

Butlin—

“The excessive mortality due to the operation, the rapidity of recurrence in what have appeared to be most favourable cases for operation, the return of the symptoms of obstruction in some if not many of the cases, and the fact that there does not appear to be one case which can be claimed as a genuine cure, lead me to doubt whether the operation of resection of the pylorus for cancer is ever a justifiable operation.”

From Professor Billroth's assistant—

“WIEN, KLINIK BILLROTH,  
“February 2, 1888.

“To Professor George Buchanan.

“DEAR SIR,—Professor Billroth does not only consider the operation of resection of the pylorus as a justifiable one, but he continues operating with good results in many cases, as you will see from the pamphlet following this letter. Of course he does not operate in cases of carcinoma if there are already infiltrations and adhesions to the liver and pancreas. In these cases he prefers Wölfler's operation or gastro-enterostomy.—Believe me, yours truly,  
FRITZ SALZER.”

Accompanying this letter was a statistical table of the operations done in Professor Billroth's “Klinik” in 1887, three by Billroth and one by Salzer. Three of these recovered and were alive at the time of writing; the fourth died after fourteen days. Surely there is, in the presence of such facts, good reason for a little longer suspending judgment.

I remember the time when one of the most accomplished surgeons of his day publicly asserted that, if a surgeon performed ovariectomy again, and it was followed by a fatal result, he might with justice be tried as a criminal charged with culpable homicide; and this owing to the almost uniform mortality from the operation.

I am not an advocate for the very frequent performance of pylorotomy, and I have before stated the conditions which may lead to further success in the future. Meanwhile, I would counsel everyone who has the prospect of being called on to do it, to practise it frequently on the dead body. The time occupied in passing the stitches can only be curtailed by frequent practice on the parts *in situ*.

As this is one of the surgical manipulations requiring special



aptitude and interest and frequent repetition, to ensure anything like success, I am of opinion that the operating surgeons of a large community, with so many hospital appointments, might agree to delegate all such operations to one or two young men who would be willing to take it up, and who would accept the duty, not because they could at first do it better than their compeers, but because they would cheerfully face the responsibility of keeping up the special knowledge required by mastering everything written about it, and the special aptitude required by the frequent practice of it in the post-mortem room.



DISEASES OF THE URINARY SYSTEM.



## I.

### ON MORBUS ADDISONII (BRONZED SKIN DISEASE).<sup>1</sup>

THIS disease is named after Addison, its discoverer (whose monograph<sup>2</sup> was published in 1855). The following is a good illustration of a typical case of the disease :—

CASE 146.—Mrs. M. A., æt. 37 ; was originally admitted to Ward 7 on 25th August 1894, suffering from gradually increasing pigmentation of the skin, loss of flesh, and progressive weakness of three years' duration, with intermittent faintness and vomiting extending over one year. She was dismissed at her own request, improved in general health, on 6th October, and re-admitted on 9th November 1894.

The patient is married, and has three children in good health. Besides these three normal pregnancies, she has had one miscarriage between the first and second.

The present illness dates back to about the commencement of the last pregnancy three years ago, and began, or at any rate first came to her notice, as an increasing darkness of the skin of the face, neck, arms, and hands. She had previously had a "fair skin." Although former pregnancies had caused her little inconvenience, this one was marked by attacks of giddiness and morning sickness, with general malaise throughout. On previous occasions she had made good recoveries, and had soon been able to resume arduous household duties, but after the birth of their youngest child she did not recover as formerly. The vomiting indeed ceased, but a year ago returned, coming on nearly every morning, accompanied by faintness and excessive perspiration. Usually the faintness passed off during the morning, enabling her to go about the work of the house with intervals of rest. Throughout this time there was breathlessness on exertion and loss of appetite, and for three weeks before admission in August she was confined to bed with weakness, and such faintness that sitting up was almost impossible. Improvement in the general condition took place during the first stay in hospital, and she states that the colour of the

<sup>1</sup> Revised article in "A Treatise on Diseases of the Skin," 2nd edition, 1894.

<sup>2</sup> "On the Constitutional and Local Effects of Disease of the Suprarenal Capsules."



skin lessened in intensity. Lately, the old sensation of faintness returned, and she came again into hospital.

Examination of the thoracic and abdominal organs yielded negative results, except that the heart sounds were weak, with a correspondingly feeble pulse. There was no albumin in the urine, and the temperature was normal.

The pigmentation on the face, neck, hands, and arms resembled that produced by intense sunburn. It was uniform as regards the brown colour, but there were freckle-like spots of darker hue. Alteration of colour was but slightly manifest in the lower extremities, except about the knees. Round the neck was a collar-like band of intense uniform pigmentation, demarcated rather suddenly from the parts below it, and more gradually shading off into the less intense coloration of the face. Another rather sharp line extended from the points of the shoulders across the suprascapular region, below which the colour was not so intense and not so uniform. In front, also, the pigmentation over the chest and abdomen was less uniform than on the face and neck, tending indeed to be patchy. The mammary areolæ were very dark, but the fold of the axilla was not markedly so. The extensor surfaces of the hands and arms, especially of the forearms, had a uniform sunburnt tint, the flexor surface being much less affected.

There was a dark line at the junction of the mucous and cutaneous surfaces of the lips, and the cutaneous surface was itself involved, with dark spots at the angles of the mouth. Along the middle of the palate was a row of brown spots; and on the mucous membrane of the cheeks, along the lines of the teeth, there was also pigmentation. Just within the row of eyelashes a fine dark line divided the intermarginal space into a pigmented and a non-pigmented portion. There was no alteration in the conjunctivæ.

*Treatment* consisted of light diet, with extract of malt and brandy, and a mixture containing cascara, nux vomica, and belladonna. Blisters were applied over the loins.

*Progress of the case.*—During the patient's stay in hospital the pigmentation became distinctly less intense, and the vomiting was less frequent. She had, however, frequent attacks of syncope. She was dismissed at her own request on 19th December 1894, and died at her own house very shortly afterwards.

One of the most striking phenomena in this disease is the pigmentary discoloration of the skin, which in typical cases, as has been well remarked, gives to the unfortunate sufferer the appearance of a mulatto, or of a bronze statue with the gloss removed. The discoloration may implicate the whole of the skin, or only portions of it, in which case there is a gradual shading

off of the brown colour into that of the surrounding healthy surface. It is most frequently met with and most pronounced, as a rule, on the hands, face, neck, axillæ, and groins, and where the skin is naturally dark, as on the penis, scrotum, nipples, and areolæ; on the discoloured parts patches or specks of a darker colour, like little moles, are frequently observed. By stimulating the skin, as by applying a mustard poultice, or by abrading it, as after the application of a fly-blister, the brown colour is intensified; but if the cutis vera be destroyed, and along with it of course the mucous layer of the epidermis, which is the seat of the pigment, the cicatrix is perfectly white. It often happens that the hair too is implicated, becoming coarser and darker; and similar discolorations are frequently met with on the mucous membrane of the lips, gums, cheeks, and tongue; but there is no alteration in the colour of the conjunctiva or of the urine, so that there is no likelihood of the disease being mistaken for jaundice. It is right to mention—and this fact is not sufficiently well known—that the discoloration in Addison's disease may be of a patchy character, and identical with that met with in vitiligo.

This is illustrated by the following case:—

CASE 147.—On the 4th April 1872, a married man, æt. 50, came to me complaining of frequent seminal emissions, and of a slight eczematous rash on the upper arm, with erythematous blotches on the chest. Even at that time he was very pallid. Under a course of iron, etc., he soon recovered. I lost sight of him until 8th August 1876, when he again came to me complaining of debility, which had been increased by an attack of diarrhœa. I found him very weak, and with a feeble circulation. It was then that I observed that there was a dirty pallor of the skin, contrasting strongly with the pearly conjunctivæ, and he told me that he had been very closely confined to business in badly-ventilated rooms. On the 3rd May 1877 I saw him again, when all the previous symptoms were present in an exaggerated form, and in addition there was a great tendency to vomiting. On the 25th July he again complained of vomiting, and his bowels were inclined to looseness. At this time I noticed that the dusky tint of his skin was much more pronounced, and that on some parts, particularly upon the backs of the hands and arms, the discoloration presented all the characters of vitiligo, that is to say, there were white patches surrounded by skin which was deeply pigmented. I saw him for the last time on the 4th September, when he was in much the same state, shortly after which I went abroad

for a few weeks, and he then consulted my friend Dr. M'Laren, who wrote me as follows regarding him :—

“ I only saw him during the last week of his life, when the usual symptoms of the disease were well marked,—great languor (he was entirely confined to bed), anæmic discoloration of the skin, with white patches here and there, loss of appetite, weak pulse, and vomiting. He sank from sheer exhaustion.”

He died about the end of October, and we were fortunate in being permitted to have a partial post-mortem examination, which was conducted by the late Dr. Foulis. The following is that gentleman's report (permission was given only to examine heart, capsules, and kidneys) :—

“ Heart rather flabby, tissue of a pale brown tint; no vascular lesion.

“ Kidneys had the characters of the large white kidney of Bright.

“ Capsules both converted into white, firm, reniform bodies, embedded in adipose tissue. On section, the capsules presented a pale yellowish white surface, mottled here and there with pale grey and yellow tints. No trace of the normal texture of the capsule remained. On microscopic examination, the structure is seen to vary in different parts. In one place a dimly granular fibrous tissue is visible. In another there is nothing but closely packed and rather shrunken small cells, rather less in size than the ordinary white blood corpuscle, while elsewhere these cells are obscured by a fine granular débris, as if they were disintegrating.”

But while in vitiligo the general health is usually perfect, in Addison's disease there are invariably constitutional symptoms, which are striking and characteristic, and generally precede the discoloration. There is gradually increasing weakness and debility; there is breathlessness on exertion, the pulse and heart sounds are very feeble, while the apex beat may be imperceptible; and, as the disease advances, to these symptoms are added anorexia, nausea, and vomiting, which may be persistent or recurring on the slightest exertion, and faintness is readily induced. Diarrhœa is common. But with all this there is usually no emaciation, and little or no fever, while sometimes the temperature is subnormal.

This disease is much more frequent amongst the lower than amongst the upper classes, and in males than in females (nearly 2 to 1), and it usually makes its appearance in early adult life.

The lesion most usually met with on post-mortem examination is scrofulous disease of the suprarenal capsules, hence we

are most likely to encounter it in strumous families. But there is good reason for agreeing with Dr. Greenhow in the opinion that the symptoms are not dependent upon the destruction of these bodies, seeing that they may be entirely destroyed from other causes without their production, but upon the extension of the morbid process to neighbouring parts, especially the solar plexus and semilunar ganglia. Further support is given to this view from the circumstance that disease of other parts, by extension to these nerve centres, is capable of giving rise to symptoms of Addison's disease, as in the following case:—

CASE 148.—“Robert M'L., æt. 60, a zinc-worker, was admitted to Ward 7 of the Glasgow Royal Infirmary (under the care of Dr. Wood Smith) on 29th September 1879. He complained of vomiting, immediately after he swallowed his food. He also spoke of a dull, constant pain in the epigastric region, immediately behind the apex of the ensiform cartilage. On examination, the skin of the body and limbs showed large, irregular, dark brown patches. These patches, which were best marked on the anterior surface of the abdomen and thighs, were in some places well defined at the edges, but at others the colour seemed to fade imperceptibly into that of the surrounding skin. Some of these patches had also spots of silvery-white colour. The mucous membrane of the mouth was not discoloured. He appeared to be much emaciated. The respiratory system was found to be normal. The heart sounds were irregular, and the second sound was rough and accentuated. Pulse was 64. His temperature on admission was 97°·2 F. He complained occasionally of a chilly, creeping sensation, which he said was constantly present.

“If he took food, whether solid or liquid, he never retained it for more than a few seconds, and it came back in exactly the same condition it was in when swallowed. This state of affairs, the patient stated, had lasted a month, and during that time he had lost much flesh. The dark brown patches had been present for nearly twenty years. Their appearance had not been attended by any illness, and, in fact, he remained a strong, healthy man until the latter end of August, when the vomiting commenced. He died on the 8th October.”

Two days later a post-mortem examination was made by Dr. Foulis, the notes of which are as follows:—

“The body is much emaciated. The thighs, arms, lower part of belly, axillæ, feet, head, and neck present a dingy brown discoloration, disposed in irregular meandering patches, on which appear a number of smaller patches of nearly pure white colour. There are no white patches on the



head and neck. The mucous membrane of the mouth does not seem to be discoloured. On opening the body, the serous membranes appear to be free from inflammation; the small intestines, however, have a dirty maroon colour, as if from post-mortem discoloration. The lungs are slightly emphysematous, but are otherwise normal. Heart is normal in size and structure. On opening the abdomen, the first thing noticed is that there is a hard mass at the cardiac orifice of the stomach, extending to the gullet, but not into it. On opening the stomach, this mass presents a dull red and partly ulcerated appearance. Pancreas does not appear to be involved in the hard mass, but two or three lymphatic glands in the vicinity are hard and slightly enlarged. No other cancer can be detected. The pylorus and bowels are normal, as also the liver, gall ducts, and spleen.

“The cancerous mass in the stomach is  $2\frac{1}{2}$  in. in diameter, and is a circular patch with the cardiac orifice in the middle, and in places is  $\frac{1}{2}$  in. thick. It is of a dull red colour, mottled with lighter tints, and the surface is here and there eroded. Its edges are raised, smooth, nodular, and firm.

“On minute examination and dissection, a considerable cicatricial thickening is found in the left solar plexus, matting the parts together. The right semilunar ganglion is also thickened, and there are hard nodules of fibrous consistence all round the left renal vein. The suprarenal capsules, however, do not seem to be directly involved, and are not thickened or enlarged.”

Before referring to the question of treatment, let me say a few words as to the possible connection between the discoloration of the skin in Addison's disease, on the one hand, and vitiligo and alopecia areata, on the other.

Vitiligo, or leucoderma, as it is termed, is a comparatively rare disease (although I have seen a good many examples of it), as appears from the fact that among 11,000 consecutive cases of skin disease which came under my notice, there were only four of vitiligo. It is characterised by brown patches enclosing others which are preternaturally white. It is, in fact, a pigmentary affection, due not so much to excessive deposit, as to irregular distribution of the pigment of the skin. It is much less common in white persons than in negroes, in whom it gives rise, of course, to much greater deformity, and induces a piebald appearance. It is also to be noted that on the head the hair growing from the white patches is entirely devoid of pigment.

Now, it may naturally be asked, what has this to do with



the discoloration of the skin in Addison's disease? That will be apparent from a consideration of the second case above recorded.

Here we had a case of Addison's disease, in which the discoloration of certain parts presented all the characters of vitiligo, and Dr. Greenhow has reported one or two cases of a similar nature.

I have long held that vitiligo is dependent upon perverted innervation of the sympathetic nerve, and that it is a neurotic affection seems to be the general opinion. Thus, Hebra stated that it is due to "disturbance of innervation"; Tilbury Fox, that "it is dependent on depressed innervation"; and Erasmus Wilson considered it "a neurosis, the result of weakened innervation." Thus we are led to surmise that there may be some connection between the discoloration of the skin in this affection and in Addison's disease, in so far, at least, as they are probably both dependent upon disturbance of the functions of the sympathetic nerve.

All are familiar with the disease to which the name *alopecia areata* has been applied. It consists of circular patches of baldness, varying in extent from a solitary small patch to the removal of every hair on the body. I shall not here discuss the question, whether there is a parasitic form of this disease. But I am perfectly satisfied, at all events, that there is a non-parasitic form; one of the proofs of which is to be found in the following cases, though not cited for this purpose.

CASE 149.—On the 15th October 1874, a gentleman, æt. about 25, rather pale, but otherwise healthy, consulted me on account of an attack of *alopecia areata*, which presented all the usual features of that disease,—round bald patches, some studded with little stumps of hairs, some with downy hairs. The disease had almost entirely removed the eyebrows, and to a considerable extent the eyelashes. It had existed on and off for twelve years; and about five years before I saw him he first noticed white spots and patches on the hands and other parts. On examination, I found that the greater part of the trunk of the body, and to a large extent the neck and backs of the hands, were the seat of well-marked vitiligo.

I saw this patient again on 12th July 1875, when I found little change, either in the *alopecia areata* or in the vitiligo, and there was no deterioration of the general health. It may no doubt be urged that this case is not conclusive, and that the two affections occurring together

in the same person may have been a mere coincidence. But a different complexion is put upon the matter if it is viewed along with the following:—

CASE 150.—A girl, *æt.* 10, healthy-looking, and born of a sound stock, consulted me on 30th June 1870 on account of round and irregular bald patches on the head, the latter being due to the coalescence of neighbouring round ones, and implicating in all about one-half of the head. The case, in fact, presented all the characters of alopecia areata. She was recommended to regulate the bowels with simple aperients, to take small doses of wine of iron, and Fowler's solution, and, after shaving the head, to sponge it night and morning with a lotion of perchloride of mercury. On 28th July all the bald patches were thickly clothed with hair, which, as is usual in such cases when the hair first reappears, was white, owing to the absence of pigment. So far there was nothing unusual in the symptoms until 23rd December, when the patient again visited me. The hair was then perfectly healthy, but, to my surprise, as white at the sites of the previous bald patches as on the 28th July, the scalp in these situations being also devoid of pigment. She then showed me what had appeared about a fortnight previously on her shoulders and back, namely, round and oval white spots, from the size of a crown downwards, the skin at the edges being deeply pigmented. In fact she now presented all the characteristic appearances of vitiligo.

These two cases tend to show that there is a very close relationship between alopecia areata and vitiligo. Now, if it be true, as I have endeavoured to show, that there is some connection between the symptoms of vitiligo and the discoloration of Addison's disease, then alopecia areata seems also to be connected with the discoloration of Addison's disease. Of course I do not mean to say, nor do I suppose, that disease of the suprarenal capsules has anything to do with the production of vitiligo, or of alopecia areata, but simply that a somewhat similar perversion of function of the sympathetic nerve lies at the root of the symptoms mentioned in all three.

It is admitted on all hands that the prognosis of Addison's disease is gloomy in the extreme, and *treatment* has consisted exclusively in attempting to subdue special symptoms, such as irritability of the stomach, and to improve the strength of the patient by means of nourishment, stimulants, and tonics. On reflecting on the very unsatisfactory results which have accrued from this palliative and symptomatic treatment of the disease,

it occurred to me that a somewhat different treatment might possibly be occasionally of service, or at all events that it could not well be less satisfactory than the usual routine. I reasoned thus:—Addison's disease has now been proved to be generally dependent upon a scrofulous affection of the suprarenal capsules. Now, when a localised scrofulous affection attacks any part of the body, we treat it constitutionally by means of antistrumous remedies, and by strong local applications, if it is on the surface, or by stimulants or counter-irritants, in some shape or other, if more deeply placed. Then why not resort to similar treatment when the suprarenal capsules happen to be the seat of disease? The following is a case treated in this way:—

CASE 151.—A lad, æt. 19, a wood-turner, was admitted under my care into the Western Infirmary of Glasgow on 16th July 1878, suffering from loss of appetite, extreme languor, and debility. He seemed to have come of a tolerably healthy family, although his brother suffered from some form of lung affection. He was always strong and well until about five months prior to admission, when his appetite began to fail. He lost all inclination for food, and was inclined to sleep or sit languidly at the fireside. Exertion of any kind was very distressing to him, and he gradually lost flesh. Shortly after this, his friends began to remark that the skin was becoming darker in colour, although he was always somewhat swarthy. There had been no change, however, in his hair, either as regards texture or colour; and although anorexia had been a prominent symptom, he had never suffered from nausea or vomiting.

On admission he was found to be considerably emaciated,—weight, 7 st. and  $\frac{1}{4}$  lb. The whole skin was of a dirty brown tint, and decidedly darker than natural; this was especially marked in those situations which are naturally most pigmented, such as the scrotum, penis, nipples, etc. The anterior was, on the whole, somewhat lighter than the posterior aspect of the body; the vaccination marks on the left arm were in parts very dark, and there was a large dark patch on the front of the chest, where a mustard plaster had been applied some time previously. There was no discoloration of the mucous surfaces, which were pale.

An examination failed to detect any disease of internal organs; there was neither pain, tenderness, nor fulness in the region of the suprarenal capsules, and the urine was natural. Pulse 96, rather weak; respirations 24; temperature ranging from  $98^{\circ}2$  to  $102^{\circ}$ , which, however, it only reached on one occasion, and for the most part it remained within the limits of health. I need not enter into the diagnosis of this case. It was admitted by all who had an opportunity of seeing it, to be a well-marked illustration of Addison's disease in the early stage.

He was treated by means of blisters over the renal regions, and cod-liver oil, combined with rest and good food and 4 oz. of wine daily. The oil was commenced on 16th July, in doses of a teaspoonful, gradually increased to a tablespoonful thrice daily. From the middle of September onwards, from 2 to 3 oz. were administered daily. Three blisters were applied to the right renal region on the 23rd July, 30th August, 30th October; and two to the left on the 3rd August and 15th September. On the 20th October the following note was taken:—"Patient is a very great deal stronger; he walks rapidly with a firm step, as if in perfect health. But he states that he still feels a little weak, though not half so much so as on admission." His colour also was much paler,—a fact which was corroborated by the patient himself, as well as by others in the same ward. The most remarkable improvement, however,—one with regard to which no doubt could exist, and which is the most striking sign of amendment in strumous affections generally,—was in body weight, as is shown by the following table:—

								st.	lb.
July	22.	.	.	.	.	.	.	7	0 $\frac{1}{4}$
"	29.	.	.	.	.	.	.	7	0 $\frac{1}{2}$
Aug.	5.	.	.	.	.	.	.	7	2
"	12.	.	.	.	.	.	.	7	2 $\frac{3}{4}$
"	21.	.	.	.	.	.	.	7	5
Sept.	2.	.	.	.	.	.	.	7	9
"	9.	.	.	.	.	.	.	7	10
"	16.	.	.	.	.	.	.	8	0
"	23.	.	.	.	.	.	.	8	0
Oct.	7.	.	.	.	.	.	.	8	8
"	14.	.	.	.	.	.	.	8	10
"	21.	.	.	.	.	.	.	8	11

That is to say, from 22nd July to 21st October he gained 1 st. 10 $\frac{3}{4}$  lb. in weight.

I do not bring this case forward as an instance of a cure of Addison's disease, but as an illustration of great improvement, resulting from the carrying out of what we may call a rational, as distinguished from a purely empirical, method of treatment.

## II.

### CASE OF RENAL CALCULUS.

CASE 152.—On the 22nd January 1877, a man, æt. 20, a ship-carpenter, was admitted into Ward 2 of the Western Infirmary, complaining principally of occasional pain in the right lumbar region, passing downwards and forwards towards the bladder.

Two years previously he got his left ankle severely sprained, and, on his admission into the surgical wards two months after its occurrence, it was found necessary to amputate the foot. While recovering from the operation, his right knee became the seat of inflammation with effusion, which prolonged his confinement to bed for seven months, and during the latter part of that period he was freely stimulated.

About a month after leaving the hospital he began to experience an aching sensation in the right lumbar region, and in a short time this was replaced by a dull pain, which occasionally darted down towards the bladder. The onset of the pain was always preceded by some degree of heaviness and lassitude, and during and for some hours after each paroxysm he had nausea, retching, and frequent vomiting. At first these attacks recurred about once a month, but oftener, if he exerted himself unusually, lasted for two or three hours, and then left him comparatively well. Latterly, however, the paroxysms came on at shorter intervals, were of longer duration, and were much more severe. The urine at such times was, he thinks, higher in colour, and, on standing, presented a slightly cloudy appearance.

Physical examination revealed nothing abnormal, except that on pressure there was some tenderness in the right loin. His appetite was good, and had been unimpaired all along, while his bowels were rather costive.

On the day after admission he had a recurrence of the pain, which he felt slightly in the perineum, as well as in the above-mentioned parts. Relief was almost immediately experienced from  $\frac{1}{4}$  gr. of morphia, administered subcutaneously.

On examination, it was found that he had passed, in twenty-four hours, 50 oz. of dark, straw-coloured urine, specific gravity 1022, and presenting a decided "powdered wig" deposit, while under the microscope abundant octahedral crystals of oxalate of lime were found. For



three days the pain returned again and again, and the urine all the while retained the above characters. Save slight sickness, he was almost free from disturbance between the paroxysms.

From the above symptoms it was concluded that the paroxysms were those of nephritic colic, due to the presence of a calculus in the pelvis of the right kidney, while the intense acidity of, and the presence of oxalate of lime crystals in, the urine, favoured the view that its superficial layers, at all events, were composed of oxalate of lime.

On the 2nd February he was put upon light diet, and began to take a tumblerful of water night and morning, and between meals. For some days he was perfectly free from pain, but on the 5th he complained, for the first time, of pain at the point of the penis, and on one occasion the flow of urine suddenly ceased during the act of micturition. The urine presented a few of the crystals which were usually absent between the paroxysms.

Forty grs. of the citrate of potass in 4 oz. of water were ordered on 7th February, to be taken every three hours; and he had, in addition, barley-water *ad libitum*. The quantity of urine, which had averaged about 50 or 60 oz., increased the following day to 120 oz., and was free from crystals.

He continued well until early on the morning of the 22nd, when he felt an excruciating sharp pain—unlike anything he had before experienced—in the right loin, passing gradually downwards and forwards to the hypogastric region in the line of the ureter; then sudden relief from pain ensued, but he continued restless and somewhat exhausted during the day. On getting out of bed the following morning, and attempting to micturate, he was seized with a sharp “stinging” pain at the “root” of the penis; urine was voided slowly and in small quantities, and then stopped abruptly, the cessation being attended by so much pain that he



FIG. 20.

had to desist from any further attempt. Acting upon instructions, he lay quietly in bed with his pelvis elevated, and partook freely of barley-water, along with the citrate of potass, and continued so for some hours till his bladder became distended. He then went down on his elbows and knees, grasped the point of the penis firmly for a few moments, then suddenly withdrew the pressure and allowed the urine to come with a “gush.” This was repeated twice, the last time accompanied by an almost unbearable “cutting” pain passing slowly along the penis. At length the pain ceased, the urine flowed freely, and on examining the vessel a small mulberry calculus, a little larger than a pea, was found at the bottom (see Fig. 20).

### III.

#### CASES ILLUSTRATIVE OF HEMIPLEGIA, THE RESULT OF THE CIRRHOTIC FORM OF BRIGHT'S DISEASE.<sup>1</sup>

IN the investigation and in the treatment of patients, it is of the utmost importance that we should carefully discriminate between the affection and the disease. Two patients, for instance, are labouring under painful affections of the joints; but in one case the pains are due to the presence of an excess of uric acid in the blood, while in the other they are dependent upon a syphilitic taint. In each the lesion of the joints is the affection; while in the one the disease is gout, and in the other syphilis. This we shall endeavour to do in connection with the following cases:—

CASE 153.—This patient was labouring under a variety of affections; but we shall see how beautifully they all fit into and harmonise with one another, and are dependent upon one and the same disease. He was *æt.* 41, a shoemaker, unmarried, and was admitted into the Western Infirmary on 5th January 1876, complaining of palpitation, with pain in the præcordial region of eighteen months', of loss of flesh, irritability of stomach, giddiness, pain in the head, and dimness of vision of eleven weeks', and of cough with expectoration, of two weeks' duration.

The family history could not be satisfactorily ascertained, but his father died at the age of 77, and his mother at 60; while of eight brothers and sisters only two survived.

At the age of 14 he had scarlet fever, at 17 gastric fever, at 19 typhus, and at 20 rheumatic fever. About fifteen years prior to admission he had a gonorrhœa, which soon disappeared; and he seems never to have had any other form of venereal disease. He was a man of extremely irregular habits, sometimes drinking for a week at a time; but more recently he limited himself to a "break out" on Saturdays. He also smoked to great excess, sometimes using more than a quarter of a pound of tobacco in a week; but of late he had been more moderate in his dissipations.

<sup>1</sup> Abstract of a Clinical Lecture, delivered in the Western Infirmary of Glasgow.

About eighteen months before admission he began to complain of palpitation, associated with uneasiness in the præcordial region, especially on exertion, and some months afterwards to these symptoms was added dyspnœa. About thirteen months before I first saw him, while undressing at night, he had a severe attack of vomiting; and a few minutes afterwards, having gone to bed, his breathing became stertorous, and he could not be roused. Along with the insensibility, which continued until six o'clock the following evening, the whole of the left side became completely paralysed. The paralysis was decidedly less by the following evening, and on his admission had in great measure disappeared. About the same time he first noticed that he was passing a great deal of urine, and several weeks afterwards slight dimness of vision set in, which in a day or two suddenly increased, so much that he was unable to recognise faces, although he could count the number of fingers held up before him. From that time his vision did not further deteriorate. Along with the impairment of sight, irritability of the stomach came on to such an extent, that he could seldom retain food for any length of time, especially if he got up and walked after a meal. About an hour after food he complained of heartburn, and brought up sour mouthfuls, and this terminated in vomiting the contents of the stomach. Latterly he suffered from pain in the head during the day, particularly in the occipital region, and from giddiness. To these symptoms must be added pallor, increasing emaciation, and debility.

In this case there was hardly a single organ of the body whose functions were not more or less interfered with; and this, as we shall see, was the result of a widespread tendency to degeneration of tissue.



FIG. 21.—Normal appearance of the fundus of the eye, as seen with the ophthalmoscope.

Let me first of all direct attention to the eye affection, which began three months before admission with, as the report says, slight dimness of vision, which in a day or two suddenly increased, so much so

that he was unable to recognise faces, although he could count the number of fingers held



up before him. On his admission into the Eye Infirmary he was barely able to read to No. 20 (Jäger), the right eye being, however, a little better than the left. Dr. Thomas Reid, under whose care he then was, made the following report:—“Pupils dilate only partially, though regularly with atropine. *Ophthalmoscopic examination.*—Fundus of each eye occupied by the characteristic white deposit of albuminuric retinitis, interfering with the definition of the optic disc, which appeared to be somewhat atrophied. Retinal vessels greatly reduced in calibre. In the left eye a considerable portion of

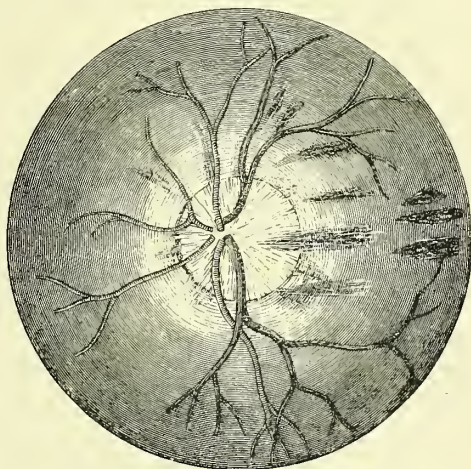


FIG. 22.—Fundus of the eye in the early stage of retinitis albuminurica, showing hemorrhagic spots and a few spots of fatty exudation.

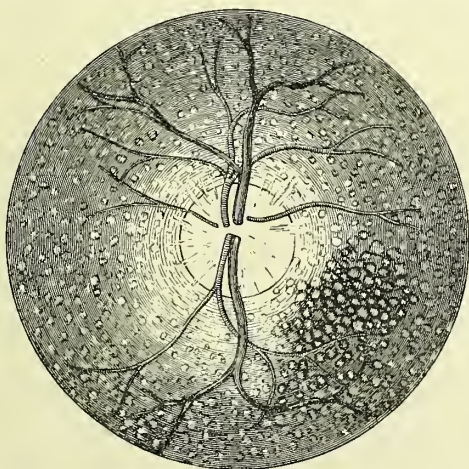


FIG. 23.—Fundus of the eye in the advanced stage of retinitis albuminurica, showing well-marked diffused fatty degeneration.

the choroid below and outside the disc had an atrophied look, and scattered pigment granules were seen in this situation.” In a letter which Dr. Reid kindly sent me, he thus fully described the characters of retinitis albuminurica:—

“1. Almost all cases of this disease are chronic, dimness of vision being generally the first symptom complained of.

“2. The essential cause of the dimness of vision is fatty degeneration

of the retina in the neighbourhood of the optic nerve entrance and macula lutea,—parts of the retina most used in direct vision.

" 3. The fatty degeneration is said to be preceded, and in some cases is certainly accompanied, by congestion and hæmorrhage, from rupture of the arterioles of the retina. When the congestion and extravasation are considerable, there may be loss of vision from this cause in the early stages of the disease; but the vision improves as the congestion diminishes, and the blood is absorbed. The sight is never perfectly restored in chronic cases, but the amount retained is determined by the extent and position of the fatty deposit. In no case is the vision entirely lost.

" 4. In the advanced stages of the disease, and probably also during the whole course of the more chronic forms, congestion and hæmorrhage are not present. The fatty deposit occurs primarily in the retina, but may also involve the choroid, as would appear from the thinning of this membrane observed when it is partially absorbed.

" 5. The origin and course of the disease are obscure, but are evidently connected with the blood vessels, being due either to some condition of the system affecting the retina and kidneys equally, or to the diseased condition of the kidneys, which, by altering the character of the humours, initiates the pathological changes observed in the blood vessels.

" 6. The patients in the chronic cases never recover, but may live for a year or two after the first symptoms have been recognised."

(See Figs. 21, 22, 23, showing—(1) The healthy retina; (2) the disease in its early stage, from the case of a patient who at the time was in the Infirmary; and (3) in its advanced stage from the case under consideration.)

The state of the eyes, then, as a matter of course, led us carefully to investigate the condition of the kidneys. As is well known, there are three forms of chronic Bright's disease,—(1) The chronic inflammatory form, that which specially affects the uriniferous tubules; (2) the amyloid, which in the first instance attacks the blood vessels; and (3) the contracted, granular cirrhotic, or gouty form, which specially involves the interstitial tissue. Any one of these may be complicated with albuminuric retinitis, but the last with much greater frequency than the others. Let us therefore run over the main features of it, and see whether they correspond with those observed in our patient.



It is for the most part a disease of adult males. It is not uncommon between 20 and 30 (Grainger Stewart), but is more frequently met with in older persons, as is apparent from the statistics of Dickinson, who found that the average age of 250 patients examined by him was 50·2 years. Our patient was a male, æt. 41.

The subjects of it gradually lose flesh and strength, become pallid, and frequently complain of headache and of giddiness, just as our patient did. The cause of the headache has been variously stated: many hold that it is due to defective elimination by the kidneys, and consequent accumulation of poisonous excrementitious matters in the blood; while others suppose that it is dependent upon the anæmia, and point, in corroboration, to the relief sometimes experienced by the administration of ferruginous preparations. In all probability, sometimes the one condition, sometimes the other, gives rise to it. For similar reasons, they are very liable to catch cold, and more or less bronchitis is a pretty uniform accompaniment, so that it was not surprising to note, in the case under consideration, the presence of cough, with mucous expectoration and slight bronchitic râles, especially at the bases of the lungs. One of the most striking symptoms to look for in cases of Bright's disease is dropsy, but in the contracted form it is absent in uncomplicated cases; so true is this, that if we meet with a patient labouring under the cirrhotic kidney who is markedly dropsical, we may be pretty sure that it results from some complication. Our patient has had no dropsy at all, and his urine presented the characters we might have expected. It was passed in large quantity (over 100 oz. in twenty-four hours), the polyuria being due, as pointed out by Dr. George Johnson, to the diuretic influence upon the kidney of the abnormal products in the circulation, analogous to the influence of sugar in cases of diabetes. It was pale, its specific gravity was low (1009), and it contained a fair amount of albumin ( $\frac{1}{3}$ ). On leaving it to stand, a scanty deposit was thrown down, in which the microscope detected a few structureless and finely granular tube casts.

Again, he had stomach symptoms such as frequently occur in connection with the contracted kidney. On referring to the history of the case, we find it stated that, "along with the impairment of sight, irritability of the stomach came on, and to such an extent that he could seldom retain food for any

length of time, especially if he got up and walked after a meal. About an hour after food he complained of heartburn, and brought up sour mouthfuls, and this terminated in vomiting the contents of his stomach." This irritability of the stomach is sometimes indicative, as post-mortem examinations have proved, of chronic gastritis, but it often, I believe, results solely from defective excretion by the kidneys, and consequent retention of poisonous ingredients in the blood,—is, in fact, uræmic; and it must be remembered that for long it may be the most striking symptom called forth by the disease of the kidneys. Some years ago a medical man, himself a distinguished teacher of medicine, began to complain of sickness, which always set in if he fasted for more than two hours. This symptom continued for months without either himself or his medical adviser suspecting its cause; but at last his urine was examined, and found to be albuminous, and about two years afterwards he died with all the symptoms of uræmic poisoning.

There can be no doubt, then, that this patient was suffering from the effects of granular degeneration of the kidneys; but if further proof be wanted, it is to be found in the discovery of lesions of the circulatory and nervous systems. On reference again to the history of his illness, it is noted that "about eighteen months before admission he began to complain of palpitation, associated with uneasiness in the præcordial region, especially on exertion, and some months afterwards to these symptoms was added dyspnœa."

On making examination of the heart, we found that there was slight fulness in the præcordial region; the apex beat was displaced somewhat downwards, and carried decidedly to the left ( $\frac{1}{2}$  in. to the left of the nipple line); its area of visible impulse was preternaturally great, and it was strong and heaving in character. On percussion, too, there was an increased area of dulness in a downward direction and to the left, and the sounds of the heart, though pure, were unusually loud and strong. The left ventricle, therefore, was hypertrophied. Now, why should such a condition arise in connection with the granular kidney? The explanation is obvious. The blood being poisoned by the excrementitious matter which ought to be excreted by the kidneys, the minute arteries throughout the system—arterioles, as they are termed—are irritated and contract, and their muscular coat, as pointed out by Dr. Johnson, becomes hypertrophied. There is thus an obstacle to the onward flow of

arterial blood to the capillaries, to overcome which the left ventricle contracts with unusual vigour, and, as a consequence, it becomes hypertrophied. This excessive action of the heart on the one hand, and the state of contraction of the arterioles on the other, produces, as was noted in this case, a full, hard, prolonged pulse,—a pulse of high arterial tension. This is well shown by the sphygmographic tracings which were kindly taken by Dr. M'Vail; the first being the normal tracing from the radial artery of my esteemed resident medical officer, Dr. Sewell, the second from the patient whose case is under consideration (Figs. 24 and 25).

Another feature in this case—a very common one it is, and

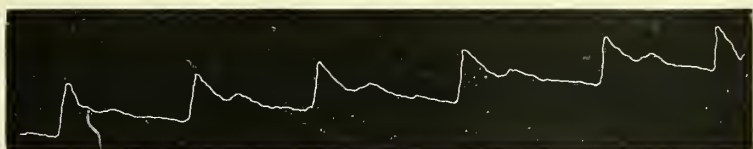


FIG. 24.—Normal pulse tracing. Pressure of 4 oz.

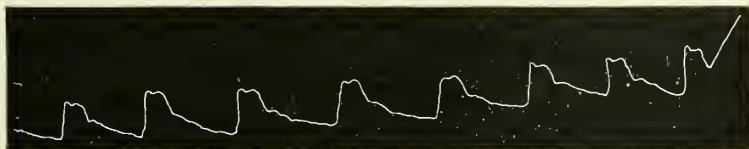


FIG. 25.—Tracing from case of granular kidney. Pressure of 6 oz.

one which in part explains the attack to which I shall immediately refer—was that the superficial arteries pulsated very visibly, were tortuous, and felt like firm cords; that is to say, their coats had undergone structural changes, and had become thickened and inelastic, leading one to infer that in all probability the delicate vessels of the brain had become atheromatous and brittle too. This degeneration is probably the result of the irritation of the coats of the vessel by the impure blood circulating through them, but it may in part be due, as pointed out by Dr. Johnson, to “the excessive strain to which they are subjected, under the influence of the high tension resulting from the antagonism between the resisting arterioles and the hypertrophied ventricle.”<sup>1</sup> And now, let me refer once more to that

<sup>1</sup> The Lunnleian Lectures on the Muscular Arterioles.

part of the history wherein it states that one night while undressing "he had a severe attack of vomiting, and a few minutes afterwards, having gone to bed, his breathing became stertorous, and he could not be roused. Along with the insensibility, which continued until six o'clock the following evening, the whole of the left side became completely paralysed. The paralysis was decidedly less by the following evening, and on his admission had in great measure disappeared." The paralysis was supposed to result from the rupture of a cerebral vessel in the neighbourhood of the right corpus striatum, for there was everything to favour such a lesion. This will be apparent when it is borne in mind that, on the one hand, the hypertrophied ventricle was driving the blood with violence into the cerebral vessels, while, on the other, the arterioles were in a state of contraction, and obstructed the onward flow of the blood; an extra strain was thus put upon the larger cerebral vessels, which were supposed to be brittle and atheromatous, and nothing could be more likely than that one of them should give way.

These cases of contracted kidney are very insidious in their onset and course, and are extremely apt to be overlooked, both by the patient and medical attendant, because often there is no very prominent symptom for a long time,—only a gradual loss of flesh and strength, with more or less pallor. On this account, medical advice may not be sought until the disease is far advanced, and when some striking disturbance of function has supervened, such as obstinate irritability of the stomach, failure of vision, an attack of convulsions, or a paralytic seizure. In this case, advice was only asked for when the eyesight became impaired, and yet the disease must have been going on for a long time, because albuminuric retinitis only occurs in an advanced stage of the disease, and because the history points to the existence of hypertrophy of the left ventricle eighteen months before the vision became dim, and hypertrophy itself does not ensue until the disease has made some progress, and has induced long-continued contraction of the arterioles from the poisoned blood passing through them.

This patient was sure to die, and at no very distant period. I need not, therefore, dwell upon the treatment, further than to say that he got whatever light nourishment he could take, and,



along with it, a course of iron in effervescence,<sup>1</sup> as it is then more readily tolerated, and in combination with hydrocyanic acid and bismuth, to soothe, if possible, the irritability of the stomach.

For some days there was a little improvement, but soon the irritability of the stomach reappeared, and became uncontrollable. Suppression of urine gradually set in, followed by coma and death on 20th January, fifteen days after admission.

The post-mortem examination was made by Dr. Joseph Coats, pathologist to the Infirmary, and the microscopic examination of the eyes and kidneys by Dr. Thomas Reid, with the following result:—

*Brain.*—There was considerable œdema of the pia mater all over the convexity, the sulci being filled up with a clear fluid. The ventricles did not contain an excess of fluid. In the left occipital lobe there was a pretty extensive softening of the brain substance, involving almost the entire bulk of three or four convolutions, the cavity caused by the softening being covered almost directly by the pia mater of the surface. The convolutions involved were situated on the external aspect, and at the extreme posterior portion of the hemisphere. The cavity contained a turbid fluid of a brownish yellow colour, and the wall of the cavity had a yellow colour, and was composed of softened brain substance. In the right corpus striatum there was a distinct cyst, as large as a hazel-nut. This was situated in the most external part of the corpus striatum, involving a portion of the most external part of the nucleus lenticularis, the external capsule, and nucleus tæniæformis. The cyst was pretty far back, its anterior margin nearly corresponding to the anterior margin of the thalamus opticus. The cyst was lined by a distinct vascular membrane, and had one or two septa running through it. It was separated from the neighbouring brain substance by the membrane mentioned. The larger arteries of the brain were the seat of numerous patches of atheroma, this condition extending to vessels of the third or fourth order. On microscopic examination of the wall of the cyst of the corpus striatum, and of the cavity in the occipital lobe, there were found multitudes of compound granular corpuscles, as well as a few blood crystals and granular pigment. The blood pigment was not abundant, but still present in every part; otherwise, the brain substance appeared normal.

The illustration (Fig. 26) shows the microscopical appearances of a section of the retina and choroid.

<sup>1</sup> R Ferri citratis, ʒiss.; acidi citrici, ʒvi.; aquæ dest. ad ʒvi. R Acidi hydrocyan. dil. ℥lxxii.; potassæ bicarbonatis, ʒvi.; liquoris bismuthi, syrupi aurantii, sing., ʒiii.—*M. Sig.* A dessert-spoonful of the contents of each bottle in a glass of water thrice daily.



*Chest.*—The pericardium contained several ounces of a straw-coloured fluid. The heart was enormously enlarged, weighing 23 oz. The enlargement involved chiefly the left ventricle, whose walls were very thick; the muscular tissue was rather pale. There was no thickening of the valves. The mitral orifice was slightly dilated, admitting three

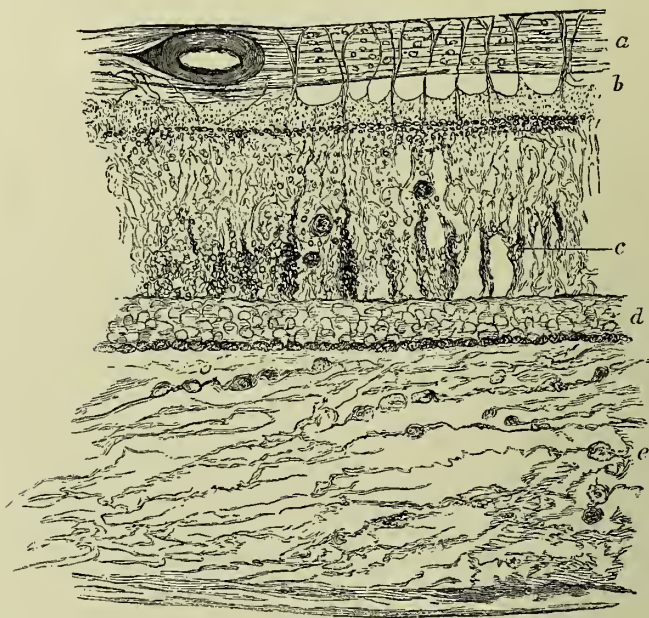


FIG. 26.—Section of the retina and choroid near the macula lutea. *a*, Nerve-fibre layer undergoing fatty degeneration, with transverse section of an hypertrophied artery; *b*, ganglionic cell-layer, the empty spaces representing cavities filled with hyaline substances; *c*, outer granular layer, containing granular cells of a brownish tint, as in *b*; *d*, layer of rods and cones replaced by granular exudation; *e*, hypertrophied choroid, with diminution of pigment.

fingers. The lungs were slightly œdematous, and their margins were emphysematous.

*Abdomen.*—The liver was enlarged, and showed evidences of chronic congestion, namely, nutmeg markings. The spleen was also enlarged, being about double its usual size. The mucous membrane of the stomach was slightly thickened and irregular. The kidneys were very small, the left especially, which weighed only  $2\frac{1}{4}$  oz. The capsule was firmly adherent. The surface was finely granular, but there were no deep cicatrices. On section, the tissue was seen to have a generally red tint, but not dark red. The tissue was firm. The cortex was not

distinctly thinner than usual, as compared with the pyramids, but its normal markings were obscured.

The illustration (Fig. 27) gives a better idea of the microscopical appearances of a section of the kidney than any verbal description can convey.

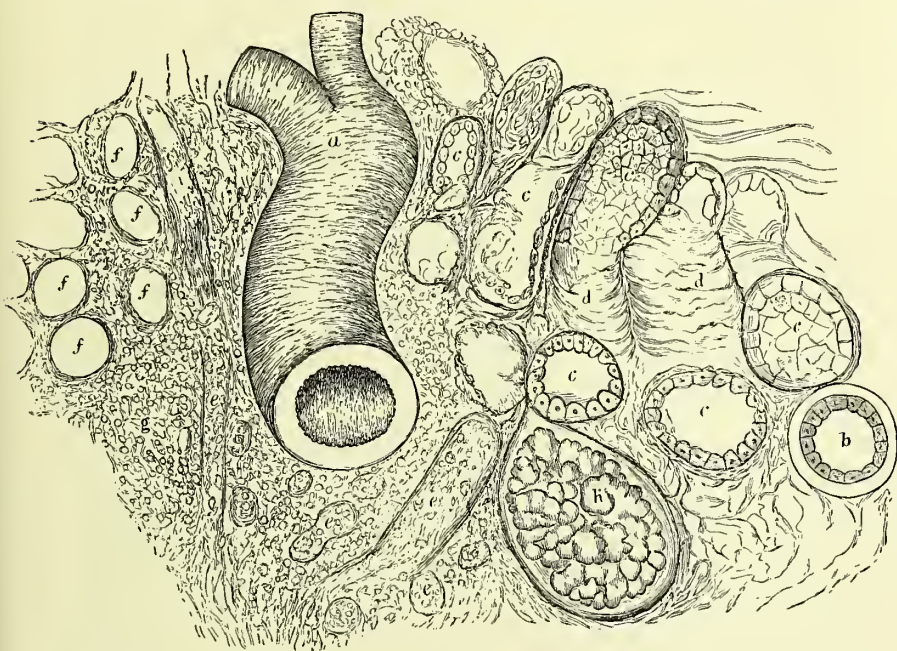


FIG. 27.—Vertical section of the cortical substance of the kidney (magnified 150 diameters). *a*, Artery of medium size, with hypertrophied walls; *b*, transverse section of uriniferous tube, showing thickened wall; *c*, sections of uriniferous tubes in various stages of degeneration; *d*, view of the internal surface of uriniferous tubules showing conversion of their walls into connective tissue; *e*, sections of atrophied uriniferous tubes containing granules, etc.; *f*, sections of the same, empty, and with no defined wall; *h*, Malpighian tuft, slightly atrophied, and enveloped in an hypertrophied capsule.

Many of the features in the case just narrated were also present in the one which follows:—

CASE 154.—Robert B., a spirit-dealer, æt. 43, was admitted to bed 16 of Ward 9 on the 2nd of March 1882. His mother died at the age of 40, of paralysis; his father is alive, æt. 64, and is paralysed on the left side; four of his brothers and sisters died in childhood, and two brothers and four sisters are alive and well.

About six years ago he suffered from rheumatism in the knees and toes, which prevented him from walking for about six weeks, and every

winter since then he has had a recurrence of the attack, while last winter the wrists were involved as well. For some years, too—he cannot say how many—he thinks that he has passed more water than formerly, and has always required to rise at least once during the night to micturate.

Five days before admission, he went to bed feeling nothing specially wrong, and awoke about the usual time next morning, complaining of severe pain in the right side of his head. On attempting to get out of bed, he found that his left side was powerless; his wife noticed, too, that his speech was “thick” and indistinct, and when he tried to drink the fluid ran out at the left corner of his mouth. Since this attack he has been confined to bed, and has been purged freely, but without relief either to the pain in the head or to the paralysis. Although not an abstainer, he had always been a temperate man.”

On examining him, it was found that there was absolute paralysis of the left arm, and almost complete loss of power in the left leg; while the corresponding side of the face was quite decidedly, although partially, affected. The sensation, as regards touch, pain, and temperature, was lost in the arm and leg; but a slight sense of pain remained in the face, as he felt a pin stuck in the cheek. At first he was drowsy, and inclined to sleep; after a while this passed off, but the pain in the head remained persistent. Latterly a good deal of stiffness ensued in the arm and leg.

As regards the *seat of the lesion*, the situation of the paralysis, no less than the pain in the head, pointed to a lesion of the motor tract in the right side of the brain; while the loss of sensation led to the inference that the sensory as well as the motor tract was involved. Further, the “late rigidity” which ensued made it clear that degeneration, starting from the seat of the lesion, had descended into the left lateral column of the cord.

As regards the *nature of the lesion*, the age of the patient and the history of rheumatism were consistent with the view that the lesion might have resulted from rheumatism,—embolic, in fact; but although the heart was not sound, there was no evidence of valvular affection, nor were there any signs of emboli in the spleen, kidneys, or elsewhere. Further, the paralysis was left-sided, while in embolism it is the right which is usually involved, the left middle cerebral artery being more directly in the current of the circulation than the right. This tendency of paralysis from embolism to involve the right side was deeply impressed upon my mind by an interesting case which was treated some time ago in the same ward, and of which the following is a brief outline:—This man, like the other, had left-sided hemiplegia; in his case also there was a well-marked history of rheumatism, and an examination of the heart showed that the left ventricle was the seat of dilatation and hypertrophy, and that there was serious disease of the aortic valves.



Further examination, too, led to the discovery of the usual symptoms of emboli of the spleen and kidney (moderate enlargement and tenderness of the spleen, albumin in the urine, etc.). These symptoms made me suspect that the hemiplegia was the result of embolism, the only circumstance against it being that the paralysis was left-sided. A post-mortem examination showed, however, that while there were abundant vegetations on the segments of the aortic valve, as well as emboli in the spleen and kidneys, the paralysis was due to hæmorrhage resulting from the rupture of a small aneurysm in the brain.

In the case at present under review, as already stated, the heart was not healthy; the apex beat, though not much displaced, was too visible, diffused, and strongly heaving in character, while the second aortic sound was accentuated. These symptoms showed that there was hypertrophy of the left ventricle of the heart, and this gave a clue to the nature of his illness; for whenever this condition is present, it shows that there must be some impediment to the passage of blood through the arterial system. An examination of the superficial vessels showed that they pulsated very visibly, were very tortuous, and felt firm, rigid, and beaded,—that, in fact, they were in a state of degeneration. This condition is of itself capable of giving rise to hypertrophy by throwing extra labour upon the heart; but a further examination led to the conclusion that the hypertrophy was not merely dependent upon the atheroma, but that both conditions were produced by one and the same cause, namely, chronic disease of the kidneys. Although there was no dropsy, the countenance was pallid, and the urine was too abundant, and contained persistently a moderate amount of albumin. These symptoms pointed to granular degeneration of the kidneys.

The sequel of this case is shortly as follows:—On the 15th of June, about 11 P.M., the patient suddenly became unconscious, with rapid and stertorous breathing; the latter soon became irregular, and presented somewhat the character of the Cheyne-Stokes respiration. The pulse was 110, full, bounding, and irregular; and the right side of the body was at times the seat of convulsive tremors. The eyelids responded when the balls were touched, and the pupils were sensitive to light. The breathing became more and more laboured, and a considerable quantity of frothy matter was expelled from the mouth. These symptoms led to the inference that a second hæmorrhage had occurred, and on this occasion into the left side of the brain, seeing that the convulsive twitchings were observed upon the right side of the body.

He died at 3 A.M. on the morning following the seizure, and the post-mortem examination yielded the following results. I quote from Dr. Coats' report:—

“*External appearance.*—There is very marked pallor of the surface.

“*Chest.*—The left ventricle of the heart is considerably enlarged,

causing elongation of the organ, and bulging of the septum towards the right. The organ, as a whole, weighed  $13\frac{1}{2}$  oz. The valves and orifices are normal. The muscular substance is at least normally firm. The lungs are absolutely non-adherent, and, with the exception of slight engorgement posteriorly and slight emphysema, are normal.

The *kidneys* are both small, the left one weighing 3 oz. The capsule is somewhat adherent, so that portions of the kidney substance are removed along with it. The substance presents a uniform finely granular appearance. On section, the cortex is seen to be considerably reduced, so that in some places the bases of the pyramids are close to the surface, while cortex and pyramids are much less distinctly demarcated than normally.

"The *liver* is normal in appearance, and weighs  $50\frac{1}{4}$  oz.

"*Head*.—On removing the dura mater, the surface of the hemispheres presents a general bulging, especially on the left side, where the convolutions feel distinctly on the stretch. The surface is also glazed. After removing the brain, nothing abnormal is visible at the base, except some œdema of the pia mater. On cutting into the left lateral ventricle, it is found filled with blood, and its floor torn up by a very large clot, which lies immediately outside, and partly involving the basal ganglia. The corona radiata is thus almost separated from the basal portions of the brain. The clot is perfectly fresh.

"On opening the right lateral ventricle, a small opening is seen in its floor, outside the optic thalamus, and in the tail portion of the nucleus caudatus. On cutting through the floor of the ventricle, a large cavity is discovered, filled with a slightly orange-coloured fluid. This cavity is in exactly the same situation as that on the other side, but is much smaller, has a much smoother lining, and is covered with an orange-coloured material, in which compound granular corpuscles and blood crystals are abundant. It is to be noted also that this cavity does not, like the other, tear up the floor of the lateral ventricle, except to a very limited extent. On cutting through the basal ganglia transversely on this side, it is found that anteriorly neither internal capsule nor nucleus lenticularis is largely destroyed, there being only portions of it left. Even here, however, the internal capsule is preserved, and is for the most part continued over the surface of the cyst to the corona radiata.

"On tearing out the arteries which penetrate the anterior perforated space on the left side, two small sacculated miliary aneurysms of globular shape are found, situated just at the bifurcation of the arteries, projecting in the fork between the two branches."



## IV.

### A CASE OF PRIMARY CANCER OF THE LEFT KIDNEY, WITH SECONDARY FORMATIONS IN THE PLEURA AND LUNGS; WITH AN ACCOUNT OF THE PATHOLOGY OF THE CASE, AND REMARKS BY DR. JOSEPH COATS.

THE following case appears to me to be worthy of being recorded, not only from the point of view of its diagnosis, but also on account of the rarity of primary cancer of the kidney:—

CASE 155.—The patient, Wm. B., was an engine-keeper, æt. 47, who was admitted into the Western Infirmary on the 25th October 1887. The family history, so far as could be ascertained, was fairly good, and there was no evidence of a hereditary tendency to malignant disease. He was rather delicate, and was subject to “coughs and colds,” but, since adolescence, he had enjoyed good health, and never had a day’s illness until two years before I saw him.

At that time, without apparent cause, he had an attack of hæmaturia, which recurred at intervals of from a week to a fortnight, for a period of about eight months.

For five and twenty years before this the veins of the leg and foot were varicose, but above the knee they were not dilated.

About the time when the hæmaturia commenced, however, the veins of the thigh also became varicose, more especially those about Scarpa’s triangle, as well as those of the spermatic cord, and, on admission, there was well-marked varicocele of the left side.

Twelve months thereafter, following upon a winter of exceptionally heavy work, he began to feel an uneasiness in the region of the left lower ribs, which in a week or two amounted to pain, and was accompanied by swelling in that locality. He himself was quite conscious of this enlargement, and that it was tender, especially on firm pressure. For the first nine months it increased slowly and steadily, but latterly with great rapidity, coincident with which the pain became

a much more prominent feature, and extended over the whole of the left side of the abdomen.

For about a month before admission, to these symptoms were added a cough and expectoration. The latter was frothy, chiefly mucoid, and contained no blood, while the former always set in when he lay upon his right side, as the result, he thought, of the tumour falling to that side. He habitually lay upon the left side, against the abdominal tumour, partly to prevent the access of coughing, and partly to relieve the pain in the side.

On examining him, it was found that debility and emaciation were extreme, while his face had an anæmic and yellowish appearance suggestive of malignant disease.

The blood corpuscles were but slightly reduced in amount, there being 4,500,000 corpuscles instead of 5,000,000 in a cubic millimetre of blood.

A huge tumour occupied the whole of the left side of the abdomen, and extended considerably to the right of the middle line. It was firm, tender, and very irregular and nodulated. It was dull on percussion over its whole extent.

From the 25th October, when he came into the Infirmary, till the 9th November, when he died, it grew with great rapidity, to the extent nearly of one-third.

It was diagnosed as cancerous, because he had arrived at that time of life when malignant disease begins to be common, because of his general state above referred to, and because of the great size, rapid growth, tenderness, and nodular character of the tumour.

As to the seat of the disease, it was a question whether it was a diseased spleen or kidney, or independent of either organ. In favour of the last view was the fact that, at the very outset of his illness, varix of the thigh and spermatic cord were well marked, a condition much more likely to occur at an early period of the illness, if its starting-point was from the peritoneum or intestine. In favour of splenic disease was the circumstance that no line of clear percussion, corresponding to the descending colon, could be made out in the front of the tumour; but the reason for this, as the post-mortem examination showed, was that the tumour had pushed the colon away to the right.

In favour of its being a kidney tumour, was the very significant circumstance, that one of the first symptoms was recurrent hæmaturia. It was true that while he was in the Infirmary the urine was repeatedly examined, and was always found to be normal, but that was accounted for on the supposition that the ureter was obstructed. On post-mortem it was found that hardly any kidney structure was left, and that the ureter was completely blocked, while the right kidney was much

hypertrophied. All the urine had therefore come from the healthy kidney.

On examination of the chest, further evidence of disease was discovered. There was fulness over the greater part of the left side, with defective movements, great dullness and resistance on percussion, feeble breath sounds, and diminished vocal fremitus and resonance, especially at the base. These symptoms pointed to copious pleuritic effusion, and it was suspected that secondary cancerous deposits had taken place in the pleura and had excited pleurisy, a suspicion which post-mortem examination proved to be correct.

*Post-mortem Examination.*—The tumour, as it lay in the abdomen, occupied the greater part of the left side of the cavity, extending from the diaphragm above to 1 in. from the symphysis pubis below, and projecting as much as 3 in. beyond the middle line. Its total measurement from above downwards was 12 in., and from side to side 7 in.; its weight was about 12 lb. The tumour was covered by peritoneum, and had pushed the abdominal organs greatly forwards and to the right. The spleen lay on the anterior surface of the tumour somewhat flattened and enlarged, measuring 6 in. in long diameter and weighing  $10\frac{1}{2}$  oz. Its anterior edge almost reached the middle line. The stomach was situated almost entirely to the right of the middle line. The descending colon was displaced forwards and to the right; it passed over the anterior surface of the tumour, and was in contact with the anterior wall of the abdomen. The transverse colon was doubled up, and in order to be accommodated made an excursion to the pelvis and back. The small intestine was accommodated half in the pelvis and half in the right lumbar region.

The tumour after removal was seen to be surrounded by a capsule which was only incomplete at the upper extremity, and it had the general outline of a greatly enlarged kidney. It was somewhat lobulated, and about a fourth up from its lower extremity it presented a somewhat deep depression, suggesting the hilus, and situated at the inner border of the tumour. The ureter, of about the normal dimensions, was traced into this region, but its calibre was occupied by an elongated yellow plug, which, however, was not firmly adherent. A probe could be passed through the ureter, and it issued in the midst of the tumour. On making a longitudinal incision into the tumour, it was seen that the probe inserted into the ureter issued in a space which was evidently the pelvis of the kidney, being lined with a distinct membrane, but greatly distorted by the new formation.

The tumour on section was seen to be composed of larger and smaller lobules of exceedingly soft tissue. The greater part of the tissue had a dead white or yellow appearance, as of an indefinite coagulum. This

frequently showed signs of disintegration, and in the upper half of the tumour there was a cavity large enough to hold the closed fist, and lined with shreddy, broken-down material. At the extreme upper extremity there were a few lobules of a soft grey transparent tissue, in the midst of which the opaque degenerated appearance was just beginning. At the lower extremity the lobules were, as a rule, rather smaller in size, and presented in general a shape suggestive of the enlarged calyces in hydronephrosis. It was only at one place near the lower extremity that any proper kidney tissue was visible. Even here it was merely a trace of the regular brown structure of the organ, and it was occupied by one or two small pale tumours, which in some parts showed softening in their central parts.

The upper extremity of the tumour showed an extension upwards, in the form of irregular lobules of soft pale tissue, which, passing along the posterior wall of the abdomen behind the peritoneum, extended into the pleura, apparently by penetrating behind the posterior attachments of the diaphragm. The pleural cavity contained a large quantity of blood stained fluid, and the diaphragm on the left side was greatly flattened. The tumour which had penetrated into the pleura was adherent to the lower lobe of the lung, and there were, besides the mass continuous with the main tumour, several isolated rounded tumours, attached to the diaphragmatic and pulmonary layers of the pleura. These varied in size, but some were as large as hazel-nuts. This lung was completely devoid of air and greatly reduced in bulk. In its substance as well as in that of the other lung there were a considerable number of white tumours of various sizes, some of them as large as marbles.

The liver was slightly enlarged, weighing 4 lb. 9 oz., and was found to contain only one small white tumour about the size of a pea.

The right kidney was much enlarged, weighing 10 oz. It was rather hyperæmic, but its structure presented no apparent alteration.

The veins of the left testicle were much enlarged and varicose. Those of the left leg were also varicose.

This case is interesting, more especially in regard to the fact that this bulky tumour really represents a transformed kidney, the case in this respect agreeing with other cases of cancer of the kidney. The mass is surrounded by the capsule of the kidney, and was in anatomical relations to the structures which are normally in proximity to that organ. More especially, the descending colon and spleen were pushed forwards and to the right, and the transverse colon was doubled up by the encroaching tumour, so that in order to find room it had passed downwards as far as the pelvis.

While in its general aspects having the character of an enlarged and transformed kidney, this view coincides with the more detailed characters. It has been pointed out that a cancer of the kidney may involve a limited portion of the organ, leaving the rest of the kidney with the ordinary characters. Thus one may find a large tumour due to a transformation of one-half of the kidney, the rest of the organ remaining continuous with the tumour, but unaltered except by pressure. The appearances in these cases suggest that the tumour advances by a progressive transformation of the kidney tissue, there being more or less of the latter remaining. In our case the transformation is very advanced, so that at first sight it looked as if there was no kidney tissue remaining, and it was only on careful scrutiny that some tissue resembling that of the kidney was discovered. Microscopic examination confirmed the view that this was kidney tissue, but it was considerably altered by pressure.

The microscopic characters of tumours of this kind entirely agree with the view that it is formed by a transformation of the kidney tissue. In a case which the writer (Dr. Coats) examined some years ago, and which is referred to in his "Manual of Pathology," the advancing margin of the tumour showed appearances which were interpreted as due to the transformation of the renal tissue into a cancerous structure. The epithelium of the uriniferous tubules was undergoing marked increase by proliferation, and the cells were variously altered in shape by mutual pressure, so that we had larger and smaller spaces filled with epithelial cells, and divided by fine connective tissue. A similar process has been described by Waldeyer.<sup>1</sup> In the present case the condition is too advanced to trace the actual transformation, but the microscopic structure of the tumour is consistent with such an origin. We have here an exceedingly delicate stroma separating groups of epithelial cells. The stroma is everywhere so slight that it may be said to consist of little more than blood vessels, and it is sometimes rather difficult to detect it even in well-stained specimens. It is composed of a delicate network in which small spindle-shaped cells are visible. The cellular masses have not infrequently a tubular outline. Even in this case, however, in examining the remains of the

<sup>1</sup> *Virchow's Archiv*, Bd. lv, S. 129.



kidney tissue, there are indications of activity on the part of the uriniferous tubules. The epithelium is frequently increased and the nuclei more deeply stained, so that tubes stand out from their fellows.

The great tendency to degeneration and necrosis in this case is worthy of notice, and is to be associated with the extreme delicacy of the stroma. There is very little properly preserved tissue in this bulky tumour, it is mostly composed of necrosed and degenerated structure. The delicacy of the stroma also accounts for the softness of the tumour.

A further point of practical consequence is the tendency which cancers of the kidney have to break into the veins and to produce thrombosis in them. In a case recorded by the present writer, along with Professor Gairdner,<sup>1</sup> the cancer had opened into a vein and had produced embolism in the lungs. In the plugs found in the pulmonary artery large cancer cells were found, and these are figured in the paper referred to. In another case seen by the writer, the cancer of the kidney had been the starting point of an extensive thrombosis, the veins of both the lower limbs being completely filled with old blood clot, which also occupied the inferior vena cava. In the present case there was no thrombosis, but pressure must have been exercised at an early period on the inferior vena cava.

In most cases cancer of the kidney remains local, being altogether confined within the capsule of the kidney. In the present case it has worked its way at the upper part through the capsule, and has extended to the pleura and lungs. The extension to the pleura has been direct, the tumours there being continuous with the primary one. The extension is not through the diaphragm, as the peritoneal layer is not affected, but rather from the retroperitoneal tissue behind the attachments of the diaphragm. The extension to the substance of the lungs has been by the veins, as both lungs are involved and the tumours are scattered through their substance.

This extension has been a late occurrence, and we may infer that, for the greater part of its course, this tumour, like others of a similar kind, remained within the capsule of the kidney. This raises in these cases the question of excision. So far as

<sup>1</sup> *Glasgow Med. Journ.*, February 1871, p. 221.

the localisation of the disease is concerned, it would seem that it should be as easy and as safe to remove such a tumour as to remove the kidney. There may be difficulties of diagnosis in the early periods, but, even when the tumour is large, it will be found as a general rule that it is merely a transformed kidney, and confined within the capsule of that organ.

## V.

### HYDRONEPHROSIS, THE RESULT OF A STRAIN.

CASE 156.—A. G., æt. 30, a weigher by trade, was transferred from Professor Buchanan's wards on 4th February 1893. He complained of pain and swelling in the right side, under the lower ribs, of about three weeks' duration.

The family history is unimportant.

But for an attack of measles fifteen years ago, patient has never been confined to bed. His health has always been excellent, with the exception of occasional slight dyspepsia.

Three weeks before admission he made a false step while coming down a stair, and, to prevent falling, twisted his body violently, so that he "strained himself." The next time he passed water it had a dark red colour. He does not remember whether or not he had emptied his bladder before the accident. The redness of the urine continued for about a week. At first there was no pain, but in a couple of days it set in on the right side, just under the lowest ribs. It was at first sharp, but became after a little dull and heavy. Since then it has been almost constantly present, but it is not now nearly so severe as at first. About the same time a swelling began to appear in the same situation, which gradually increased in size for some time,—he is not sure how long,—but latterly it has remained stationary. A doctor examined his urine, and told him that the colour was due to blood. The blood was intimately mixed with the urine during micturition.

On examination, a soft elastic swelling is discovered lying under the right lower ribs. It is slightly tender to pressure, extends from the fourth rib to 3 in. below the costal arch, and round the right side to the back, filling up the lumbar region behind. It is quite dull to percussion. In front the dulness is continuous with that of the liver, and behind it occupies the right lumbar region, extending upwards to the base of the lung to within a short distance of the angle of the scapula. In front, a portion of the tumour lying about 2 in. under the costal arch and slightly to the left of the nipple line, is more prominent than the rest, and is semifluctuant. There is no clear percussion in the situation of the ascending colon. The other organs are healthy.

The urine has a specific gravity of 1015, and contains abundant urates, but no albumin or blood.

The temperature from 4th to 11th February varied in the morning between  $98^{\circ}\cdot6$  and  $101^{\circ}$ , and in the evening between  $100^{\circ}\cdot4$  and  $102^{\circ}\cdot8$ . The patient is somewhat thin, and perspires a good deal.

On 12th February blood appeared in the urine for the first time since admission. The urine was very dark, acid, of specific gravity 1020, and contained albumin and a copious bloody sediment. A small quantity of fluid was drawn off from the prominent portion of the swelling, which, with the urine, was sent to Dr. Coats for examination. His report is as follows:—"The fluid removed by puncture and the urine have somewhat similar characters. In both there are many red corpuscles, mostly shrunken and probably old, and in both there are many leucocytes, mostly fatty and old. The pus corpuscles are most abundant in the urine, and the blood in the fluid. The two have probably the same source." During the afternoon of the 12th the temperature rose to  $104^{\circ}\cdot2$ , fell at 8 P.M. to  $102^{\circ}\cdot6$ , but rose again at 4 A.M. on the 13th to  $104^{\circ}$ . At this level it remained, in spite of two doses of 10 grs. of quinine, till midnight, when it fell to  $101^{\circ}\cdot8$ , and next day (the 14th) varied between  $99^{\circ}\cdot4$  and  $101^{\circ}$ . Blood remained abundant in the urine till the morning of the 14th, when but a small quantity was present. Later in the day, however, it was more copiously passed, but on the 15th it disappeared entirely. Owing to the puncture, the anterior prominence disappeared. The tumour also contracted somewhat, and on the 17th measured in the nipple line  $7\frac{1}{2}$  in. The temperature varied between  $98^{\circ}\cdot4$  and  $101^{\circ}$ , showing a distinct evening rise; but the patient expressed himself as very comfortable.

From this time there was little change in his condition. The evening rise of temperature became somewhat less marked and intermittent. Blood did not reappear in the urine, the quantity of which varied as a rule between 40 and 60 oz. On the 1st March 70 oz. were passed, and on three occasions thereafter 76 oz. The specific gravity varied somewhat: on 20th February it was as low as 1010, and on 23rd March reached 1022. Albumin was absent except for a trace which was noted on 1st March.

The tumour did not contract any further. The patient left of his own accord on 24th March 1893, Professor George Buchanan being of opinion that, on the whole, operative interference should be avoided.

## VI.

### HYDROA ÆSTIVALE IN TWO BROTHERS, COMPLICATED WITH THE PRESENCE OF HÆMATOPORPHYRIN IN THE URINE.

THE cases to which reference is about to be made are in some respects unique, so far as my reading and experience go.

The first case is only given in outline, as it has already been recorded.

CASE 157.—A fisherman from Stornoway, æt. 26, was admitted into the Western Infirmary of Glasgow on 5th December 1896, suffering from an eruption on the face, ears, and hands, of eight months' duration. When 4 years of age he had an eruption on the nose, with regard to which he can only say that it was crusted. Some time afterwards, however, an eruption similar to the present attack made its appearance, and since that time has been an annual visitor. It usually began in early summer, and disappeared on the approach of winter. He was first admitted on 29th June 1895, and remained till January 1896. After dismissal, he kept well until the beginning of May 1896, when his former symptoms recurred.

The disease commences with a sensation of itching and burning in one of the localities mentioned, or in the forearms. This persists for ten or twelve hours, and is followed by the formation of blisters, varying in size from that of a pea to a crown piece; they are filled with a greenish serum. The fluid in the bullæ is sometimes re-absorbed, leaving only a temporary pigmentation. Frequently, however, the bullæ burst, and a crust forms on the denuded surface, under which healing takes place. This is followed by cicatrisation and contraction, as a result of which his fingers have for the last twelve years been becoming stiffer, so that now he is unable completely to close his hands. Great contraction of the nose has also taken place, the alæ nasi being all but destroyed; and the ears are much shrunk and deformed. While the attack lasts, bullæ keep forming from time to time, and when they are seated upon cicatrices they are often filled with blood stained serum.



The duration of the attacks—which are not accompanied by any decided constitutional disturbance—appears to be extending, for, though they still commence at the beginning of summer, they now persist



FIG. 28.—Hydroa Æstivale.

well into the winter. He connects them with exposure to sunlight, and asserts that a period of cloudy weather brings temporary relief.

On examination of the urine, it is found to be of a light Burgundy-red colour. This, he states, has been observed with every attack, while its colour has been normal in the intervals; but of late the discoloration has persisted for some time after the disappearance of the eruption. This pigmentation of the urine will be referred to in detail later on, but in the meantime the case of his brother must be mentioned.

CASE 158.—This man, also from Stornoway, æt. 23, was admitted into the Western Infirmary of Glasgow on 23rd August 1897, complaining of an eruption affecting the face, ears, and hands, which had been coming and going for twenty years. When I came to his bed, I found his appearance identical with that of his brother, so that I never doubted that it was the latter who had returned to us.

The history of his case was mainly supplied by a brother, as he himself was only able to speak a few words of English. The eruption, which first made its appearance when he was three years of age, sets in usually in the late spring or early summer, and disappears with winter, or when the cold weather begins; but he can avert an attack so long as he keeps in the house.

The parts implicated are the face,—especially the nose,—ears, hands, and neck, and the eruption is preceded for several hours by an intense itching of the skin of the uncovered parts of the body. Unless the hands alone are affected, this is accompanied by severe headache, which may continue for a couple of days, and then bullæ make their appearance, when the itching subsides. These vary in size and contents. If small, they are filled with clear serum; but if large, with a greenish exudation. They may be absorbed, leaving only a temporary discoloration, or they may rupture spontaneously in from two to eight days after their appearance. In that case, healing takes place under a scab, and permanent scarring is the result, while blisters containing bloody serum frequently appear on the cicatrices.

When about ten years of age, the skin over the interphalangeal joints became involved, which has led to stiffness and deformity, especially of the forefingers. The ears are much deformed, especially their outer edges, and the nose is greatly contracted, giving to the patient a very striking appearance (Fig. 28). The urine is of a light Burgundy-red colour, and appears never to have resumed its normal colour in the intervals between the attacks. With this exception, the history and appearances in the two brothers are identical even up to the most minute details.

I sent specimens of the urines of both patients on several occasions to my colleague, Dr. F. Harris, B.Sc., of the Physio-

logical Laboratory of Glasgow University, and the following is the substance of his reports :—

“ I have examined several specimens of the urines of both of your patients, and the results in both cases are identical. The urine is of decidedly acid reaction, and contains no proteid, bile pigment, or hæmoglobin. The normal yellow pigment (urobilin or urochrome) is entirely replaced by a dark red (Burgundy-wine-coloured) pigment, exhibiting, when examined by the spectroscope, four well-marked absorption bands. That it is not methæmoglobin, is proved by ammonium sulphide having no reducing power upon it whatever.

“ It is an ally of the orange-coloured pigment called by MacMunn “ urohæmatoporphyrin,” a proteid-free, iron-free pigment, with a four-banded spectrum, which, upon treatment with strong  $\text{H}_2\text{SO}_4$ , is changed to the familiar two-banded one of acid hæmatoporphyrin.

“ This dark red ally of urohæmatoporphyrin has been previously met with only in some half-dozen cases, and although MacMunn has relegated it to a position intermediate in degree of oxidation between hæmatoporphyrin and urohæmatoporphyrin, neither he nor Halliburton has named it. It might of course be called ‘*a* hæmatoporphyrin,’ but that is not sufficiently descriptive; and to avoid having to allude to it by a phrase, I have provisionally named it meio-de-oxyhæmatoporphyrin.

“ Its bands are—

“ 1. One to the left of D.

“ 2 and 3. Two between D and E, the right-hand one of these being much the darker.

“ 4. One to the left of F, but coming up to the F line.

“ It appears to be a most stable pigment, for the specimen I had from you in December 1896 is now (2nd November 1897) spectroscopically the same as it was then, and even the urine has very little tendency to decompose.

“ To sum up, this is a very rare Burgundy-coloured, proteid-free, iron-free pigment, allied to urohæmatoporphyrin, less reduced than that pigment, and still less reduced than urobilin itself; in other words, this red pigment is nearer to hæmatin than either of these.”

That there is a close connection in the foregoing cases between the cutaneous manifestations and the pigmentation of

the urine, will, I think, be generally admitted, but what that connection is it would be premature to surmise.

The treatment in the first case consisted of cod-liver oil (3 oz. daily) and arsenic in full doses (15 to 30 minims daily), with careful regulation of the diet; while, in the second, the cod-liver oil was combined with the administration of gradually increasing doses of antipyrin (30 to 135 grs. daily), but whether the treatment adopted shortened the attacks, or whether they ran their natural course, it is impossible to say with certainty. The antipyrin was given on the principle of the disease being a neurosis.

## VII.

### ILLUSTRATIONS OF THE TREATMENT OF PARENCHYMATOUS NEPHRITIS.

THE prospects of success in the treatment of parenchymatous nephritis depend a good deal upon the constitution and habits of the patient, the tubercular diathesis, and intemperance in particular, being powerful factors warring against a favourable prognosis. Much will also depend upon whether the case is simple or complicated, upon the severity of the attack, and, above all, upon its duration when the patient first comes under observation. It is not proposed in this place to consider all the varied methods of treatment from which cures may be anticipated, there being many roads tending towards the same goal, but only to give a few illustrations of some of the measures which may prove successful.

In the following case, elaterium and Trousseau's diuretic wine yielded excellent results, after almost all hope had disappeared:—

CASE 159.—A little boy, æt. 5, was admitted into the Western Infirmary on 3rd October 1878, in an intensely dropsical condition, the subcutaneous cellular tissue being universally loaded with fluid, and so distended, that pitting upon pressure could with difficulty be obtained. There was high tension of the pulse, and the second aortic sound was markedly accentuated; the urine was very scanty, loaded with albumin, and contained an abundance of characteristic tube casts. In fact, he had all the typical symptoms of tubular nephritis in the most aggravated form, and which need not further be enlarged upon. Under the use of purgatives and diuretics, with milk diet, considerable improvement took place in his condition, but after a while the dropsy again began to increase, in spite of perseverance in the treatment, and became so excessive, that on 10th November the legs and scrotum were tapped with the aid of Southey's trocar and cannula. At this time the urine was very scanty, only 4 oz. being passed in twenty-four hours.



The case seemed all but hopeless, nevertheless I determined to try very energetic treatment: he was freely purged with elaterium ( $\frac{1}{16}$  gr. every second day), while half a teaspoonful of Trousseau's diuretic wine was given three times a day. The effect of these measures was most gratifying: the urine became very abundant, the dropsy rapidly subsided, and soon all trace of albumin had disappeared from the urine. On 4th January he was put upon cod-liver oil, the former treatment being discontinued, his diet was cautiously improved, and a few weeks later he was dismissed in the most perfect health.

In the next case, which was not nearly so threatening, milk diet and pilocarpine sufficed for a cure.

CASE 160.—A young man, æt. 20, was admitted into the Western Infirmary on 13th February 1879. He was suffering from acute desquamative nephritis, which came on suddenly on 4th February, with the usual symptoms, namely, high tension of the pulse, anasarca, high-coloured, scanty urine, and tenderness in the lumbar regions. When admitted, the dropsy implicated the face and lower extremities, and was pronounced; the urine was loaded with albumin, and contained blood corpuscles and an abundance of tube casts, specific gravity 1018. He was kept in bed, and put upon milk diet, while daily injections of  $\frac{1}{4}$  gr. of pilocarpine were given. These were followed by marked lowering of the blood pressure, profuse perspiration and salivation lasting for about half an hour. The improvement in other respects was rapid, the dropsy soon disappeared, while the urine became abundant. By the 10th of March the albumin had entirely disappeared from the urine, and soon afterwards he was dismissed well.

In the next two cases, skimmed milk was almost exclusively relied upon.

CASE 161.—A mason, æt. 24, who was much exposed to vicissitudes of weather, and who was frequently in the habit of putting on clothing which had not been thoroughly dried, after being wet on the previous day, came into the Western Infirmary on 10th November 1883, complaining of swelling of his face, hands, and legs, with cough and expectoration of about a week's duration. While at his work his fellow-workmen told him that his face was swollen, but, feeling very little wrong, he paid no heed to them, and continued at work till the 5th inst., when he found his feet and legs considerably swollen, and next day his hands and arms became similarly affected. During this time, too, he noticed that his urine was very scanty and high-coloured, although his bowels were regular.

On admission there was very marked œdema of the face, legs, and

arms, and cough was very troublesome, and accompanied by some frothy and mucous expectoration, while pretty abundant musical râles were heard throughout the chest. The cardiac sounds were normal, with the exception of accentuation of the second sound at the base, and there was high tension of the pulse. The quantity of urine passed was 30 oz. in twenty-four hours; it was high-coloured, specific gravity 1028, contained a large amount of albumin, and, in the copious deposit, tube casts were found in abundance, many of them of the epithelial variety. The only medicine given was 1 drm. of compound powder of jalap on admission, which moved the bowels freely, but did not ameliorate the symptoms. Accordingly (on 4th November) he was fed exclusively upon skimmed milk for eight days, to the extent of from 11 to 14 pints daily. The urine immediately increased in quantity, and on the fourth day reached 220 oz., by which time the dropsy had almost entirely disappeared, no tube casts could be found, and the urine only contained a slight amount of albumin. On the eighth day from the commencement of the treatment (22nd November) the dropsy and albuminuria had entirely disappeared, while the bronchitic symptoms were also gone. He was dismissed well early in January.

As a further illustration of this method of treatment, the following case may be briefly mentioned:—

CASE 162.—On 16th May 1878, I was consulted with regard to a lad, 14 years of age, who was a member of one of the most scrofulous families of my acquaintance, and who had been treated by me two years previously for an attack of what I diagnosed as tubercular peritonitis. He had well-marked and increasing œdema of the face, of four days' duration; the urine was loaded with albumin, and he had the other typical symptoms of tubular nephritis, which need not further be enumerated. He was kept in bed and fed almost exclusively upon skimmed milk, which he took in large quantities, but the exact amount was not measured. The following table shows the result of the treatment:—

Diet.	Date.	Urine.	Remarks.
...	May 16, 1878	40 oz.	...
...	" 17, "	152 "	...
Cup of tea and toast in addition .	" 18, "	224 "	...
...	" 19, "	168 "	...
...	" 20, "	140 "	...
Chicken soup and less milk . .	" 21, "	88 "	...
Fish; out of bed for a little . .	" 22, "	88 "	No albumin.
...	" 23, "	96 "	Dropsy gone.
Tinct. ferri mur., 10 minims thrice daily.	" 24, "	60 "	...
...	" 25, "	56 "	...
...	" 26, "	70 "	...
...	" 27, "	40 "	Keeps quite well.

This is a favourite method of treatment with me, and is often quite successful, always provided that we can induce the patient to take the skimmed milk in sufficient quantity, for, while providing the patient with a fair amount of bland nourishment, it washes out the uriniferous tubes, which are blocked up with casts, epithelial débris, etc. But if it cannot be taken in large doses—say 10 to 16 pints in twenty-four hours—it is useless to persevere with it. Treatment of this kind is opposed to the view held by many, that diuretics are inadmissible in cases of tubular nephritis, but I have never found any bad effects to follow its use.

## VIII.

### CASE OF CARCINOMA OF THE BLADDER.

CASE 163.—W. L., æt. 58, a labourer, was admitted to Ward 2 of the Western Infirmary on the 29th April 1896, suffering from hæmaturia of five months' duration.

His father died, æt. 67, of "weakness"; his mother at 80, of "intestinal obstruction." Five brothers and two sisters are dead. One died of "water in the head," one of "heart disease," another of cholera, and four in adult life of "decline."

When 26 years old, he had "inflammation" in one lung, from which he recovered in three weeks, and eight weeks ago he had severe diarrhœa for one week; but otherwise he had always enjoyed exceptionally good health.

The onset of the present affection was one year and nine months ago, when he suddenly observed that his urine was red. It continued so for four days, then became clear again. He suffered no pain or inconvenience from it, and could not attribute it to any cause except that he had jumped off a stone wall the day upon which he noticed it. It continued clear till one year afterwards, when, on passing water immediately after getting up one morning, he observed it red as before. It remained so for a week, and, as on the previous occasion, was associated with neither pain nor discomfort. At the end of the week, he thinks, the urine resumed its normal colour. Three months after this, towards the close of last year, he again observed that the urine passed was of a bright red colour as before. He could not attribute this to any cause, and felt himself in his usual good health. Since then the urine has always been red, though the colour has varied in intensity at different times, and occasional clots of blood as large as a bean have been mixed with the urine. For the past four months he has felt a soreness across the "small of the back," which has been constant, but aggravated by walking or standing, and relieved by the recumbent posture. This soreness he attributes to weakness. He has also had frequency of micturition, requiring to urinate at least every half hour, and more frequently during the night. There has been no difficulty in micturition except when the urethra got blocked with a clot of blood, nor has the act ever been accompanied by pain, either before or after.

till within the last few days, when he experienced a slight burning immediately after passing water. The pain lasts for a few minutes, and is getting worse. The quantity of urine passed in the twenty-four hours he considers to have been all along normal. He has had neither pain nor swelling in the lumbar region, nor has there been any tenderness at any time in any part of the abdomen. The bowels are regular. His general health has remained fair, but he has lost both flesh and colour.

When admitted the physical condition of the abdomen was entirely negative, there being neither tenderness nor fulness in the flanks or hypogastrium.

It was apparent that the hæmorrhage came from the bladder, for the following reasons:—

1. The urine was almost alkaline or neutral in reaction.
2. It was always more bloody towards the end of micturition.
3. It contained clots of blood and triple phosphates.
4. Frequent painful micturition was latterly a marked feature.
5. Cystoscopic examination by Dr. Nicol revealed a large shaggy-looking mass projecting from the left side of the base of the bladder. This mass could also be detected per rectum as a somewhat nodulated induration beyond the prostate. Carcinoma of the bladder was diagnosed for the following reasons:—

1. Age of the patient (58).
2. Loss of flesh and colour.
3. The results of the cystoscopic examination.
4. The presence in the urine of large, round protoplasmic cells. The same suspicion occurred to Dr. Coats, who likewise examined the urine.

20th June 1896.—*Sequel.*—On the 13th June he complained of feeling sick, and soon afterwards vomited. No cause for these symptoms could be detected, and they were not relieved by counter-irritation to the epigastrium and sedative drugs. Latterly nothing at all was given by the mouth, and he was fed per rectum, after which hiccough set in and persisted.

The quantity of urine passed fell from 70 to an average of 18 oz. per day, and contained a considerable quantity of blood; but there was no retention. The pulse was 76, regular, strong, and full; respirations 19, easy; temperature normal; bowels regular. He complained of headache for a few days.

Five minutes before his death, he asked the nurse to raise his hand, when it was observed to be twitching, and after it was lifted it fell helplessly on the bed. He was perfectly conscious at that time; his pulse was full and strong, and the breathing natural, but he was inclined to be restless. He suddenly became pale, and died after two or three stertorous respirations.

No post-mortem was permitted.



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